MIGRATION AND SETTLEMENT:
17. ITALY

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FOREWORD

Interest in human settlement systems and policies has been a central part of urban-related work at the International Institute for Applied Systems Analysis (IIASA) from the outset. From 1975 through 1978 this interest was manifested in the work of the Migration and Settlement Task, which was formally concluded in November 1978. Since then, attention has turned to dissemination of the Task's results and to the conclusion of its comparative study, which, under the leadership of Dr. Frans Willekens, has concentrated on a comparative quantitative assessment of recent migration patterns and spatial population dynamics in all of IIASA's 17 National Member Organization countries.

This report completes the comparative analysis of national patterns of interregional migration and spatial population growth that has been carried out by an international network of scholars who have been using methodology and computer programs developed at IIASA. In it the authors focus on two multiregional disaggregations of the Italian population system, analyzing the demographics of the 5 and 20 subnational populations that comprise the national total.

Reports summarizing the previous migration and settlement work at IIASA are listed at the end of this report.

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1 INTRODUCTION

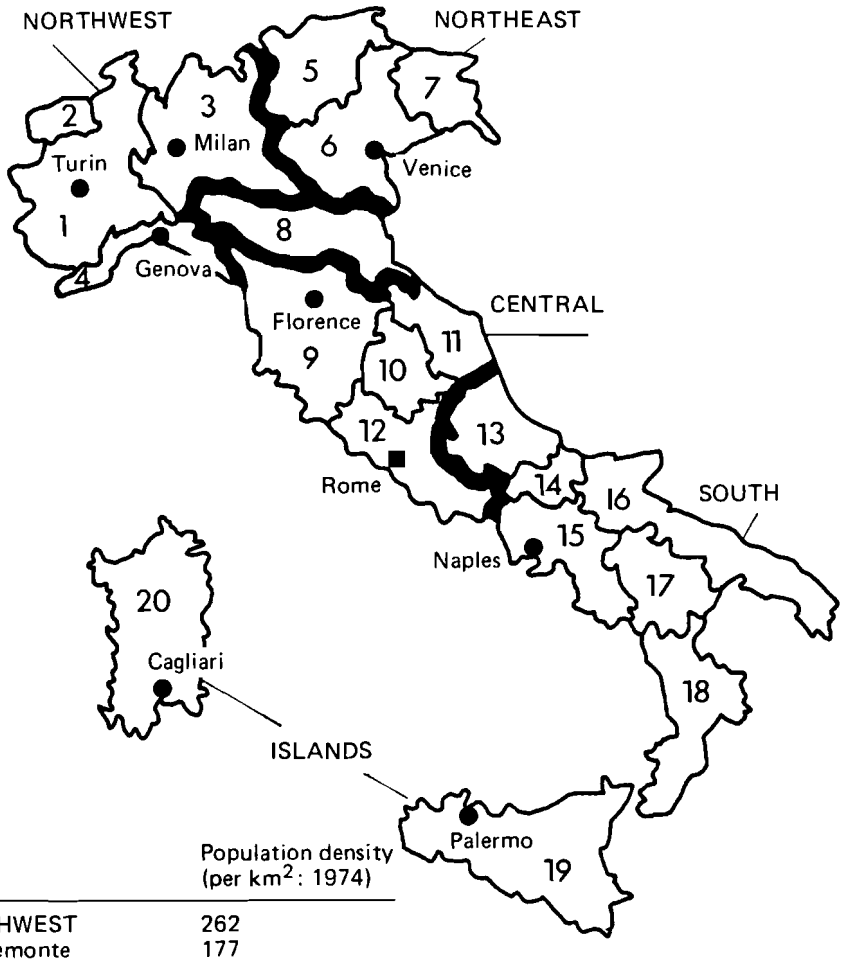
The Italian Republic is divided into 20 administrative regions (Figure 1), the governments of which have significant fiscal resources and independence in implementing territorial planning policies. These regions are divided into about 100 *provincie*, which are in turn divided into more than 8000 *comuni*. The *provincie*, which are based on the model of the French *départements*, have very narrow political and administrative autonomy, since they are the local articulators of more centralized governing bodies. The *comuni*, on a lower administrative level, are in closer contact with their residents and provide them with a number of administrative and social services.

Italy's population, which in 1980 numbered about 57 million, is distributed unevenly. Calabria and Basilicata in the south are sparsely populated with relatively few people per square kilometer, while Lombardia, Liguria, and Campania show population densities of about 350 per square kilometer (see Figure 1).

Census data have been collected in Italy every 10 years since 1901. Registration data, which are taken from communal registers, have been available in some communes since 1902 and in all communes since 1903. Statistical surveys are regularly carried out with the aid of these data by the Central Statistical Office (ISTAT), which collects and publishes a substantial amount of economic, demographic, and social data for various levels of aggregation. It should be noted that since the 1950s, ISTAT has also provided a reasonably complete data base at a level of disaggregation that lies between the national and regional levels and is used only for statistical purposes. This division of the national territory is obtained by aggregating the regions, according to the criteria of adjacency and socioeconomic homogeneity, into four *ripartizioni*. Data availability at this level, particularly from the economic point of view, is comparable with that at the national level.

This report utilizes data for the 20 administrative regions since they

- offer a sufficient level of territorial disaggregation
- present similar homogeneous internal structures



Region	Population density (per km^2: 1974)
NORTHWEST	262
1 Piemonte	177
2 Valle d'Aosta	34
3 Lombardia	365
4 Liguria	345
NORTHEAST	165
5 Trentino-Alto Adige	63
6 Veneto	229
7 Friuli-Venezia Giulia	157
8 Emilia-Romagna	176
CENTRAL	180
9 Toscana	153
10 Umbria	93
11 Marche	142
12 Lazio	280
SOUTH	177
13 Abruzzi	110
14 Molise	74
15 Campania	381
16 Puglia	190
17 Basilicata	61
18 Calabria	133
ISLANDS	126
19 Sicilia	186
20 Sardegna	63

FIGURE 1 The 5 and 20 regions of the Italian Republic and the 1974 population density per square kilometer. Source: CICRED 1974, p. 5.

- meet the requirements of data availability from both the socioeconomic and demographic points of view
- are politically active units, ruled by governments that are elected directly by the population and are responsible for the design of their own regional development policies

In order to have a broader view of the different patterns from south to north, 5 aggregated regions are also considered:

I *Northwest*: Valle d'Aosta, Piemonte, Lombardia, Liguria
II *Northeast*: Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna
III *Central*: Toscana, Umbria, Marche, Lazio
IV *South*: Abruzzi, Molise, Campania, Puglia, Basilicata, Calabria
V *Islands*: Sicilia, Sardegna

Regions I, II, and III coincide with the first three *ripartizioni* described above; regions IV and V compose the fourth *ripartizione*.

Section 2 reviews the national demographic trends observed over the last 80 years, and section 3 considers regional differences in growth patterns. Section 4 presents the results of the multiregional population analysis, performed for the 5 and the 20 Italian regions using computer programs developed at IIASA. Data for 1978, obtained from the Central Statistical Office, are used in the analysis. Section 5 concludes the report with an overview of population policies implemented in Italy.

2. PATTERNS OF SPATIAL POPULATION GROWTH

2.1 Historical Review of National Demographic Patterns

It is common practice in demography (Federici 1965, Keyfitz and Flieger 1971) to characterize populations in three classes according to their level of natural increase or decrease:

(1) high fertility and mortality
(2) high fertility and low mortality
(3) low fertility and mortality

Adopting this threefold classification and referring to the historical series of crude birth and death rates shown in Figure 2, we can see that at the beginning of this century Italy was in the midst of a demographic transition from the first to the second type of population (also see Vitali (1978) who performed an earlier stable population analysis in Italy). This transition was characterized by a high level of fertility and by a lower and decreasing level of mortality (even

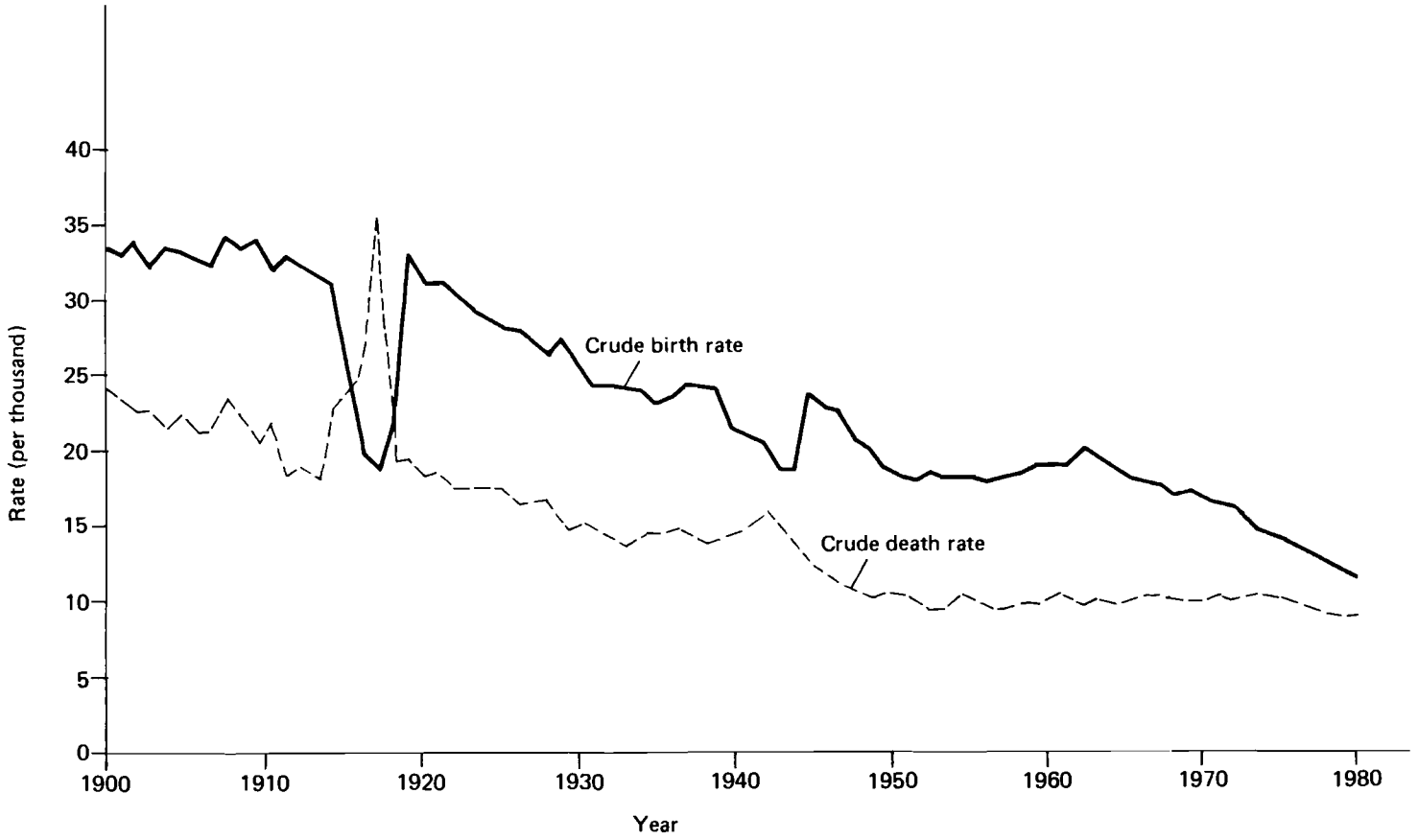


FIGURE 2 Crude birth and death rates (per thousand): Italy, 1900–1980. Source: ISTAT 1958, 1981a.

though still relatively high). With the exception of the two world war periods, both crude birth and death rates regularly decreased to levels characteristic of the third type of population.

The periods 1915–1918 and 1940–1945 were distinguished by strongly anomalous behavior, exhibiting low fertility and high mortality rates also found in other European countries involved in the two world wars. The drastic drops in the crude birth rate have had limited but persistent consequences on the age structure of the population; in fact, the age pyramids for recent census years show accentuated indentations for the groups born during the years of global conflict.

Since 1950, the crude death rate has hovered around the 10.0 per thousand level, with some cyclical fluctuations. Obviously, the aging of the population has been partially compensated for by the continual decrease in mortality rates, brought about by an improved health care system and the spreading of social and economic welfare programs. Figure 2 shows that within the period 1952–1980 the crude birth rate exhibited two different behaviors: an increase between 1952 and 1964, and a decrease from 1965 on. The increase probably resulted from the remarkable expansion of the Italian economy in those years, and particularly from improved employment opportunities, which led to a greater number of marriages than in earlier years.

The variations in the fertility and mortality rates in Italy between 1901 and 1980 resulted in a change in the age structure (Figure 3). The age pyramid for 1901 shows the large base and regular slope characteristic of the first and second types of population. The pyramid for 1980 shows, in contrast, the reduced base and steeper, irregular slope typical of the third type of population (Keyfitz and Flieger 1971).

Fluctuations can also be seen in the mobility pattern that evolved over the years in Italy. Figure 4 illustrates the series of internal migration rates, defined as the ratio of the number of persons changing their residence to the mid-year population. Again the behavior was strongly disturbed during the two world wars, a time when mobility was clearly discouraged. For the remaining periods, we see a noticeable change from the migration level during 1902–1919 to the migration level during 1920–1940. Within the latter period the migration rate increased substantially. This is usually attributed (Treves 1976) to the simultaneous drastic reduction of migration out of the national boundaries, which was a consequence of the barriers imposed on immigration by the traditional countries of destination for Italian emigrants (i.e., the United States and South American countries).

After World War II and until the early sixties, the internal migration rate grew rapidly. This was caused by the differing economic evolution of various parts of the country; in fact, spatial differences in growth rates and in patterns of socioeconomic development gave rise to strong regional disparities in income and employment opportunities, to which migration flows are significantly related. The growth period ended in the years 1962–1964 with a very high peak that resulted from the intensification of economic stimuli as well as the repeal

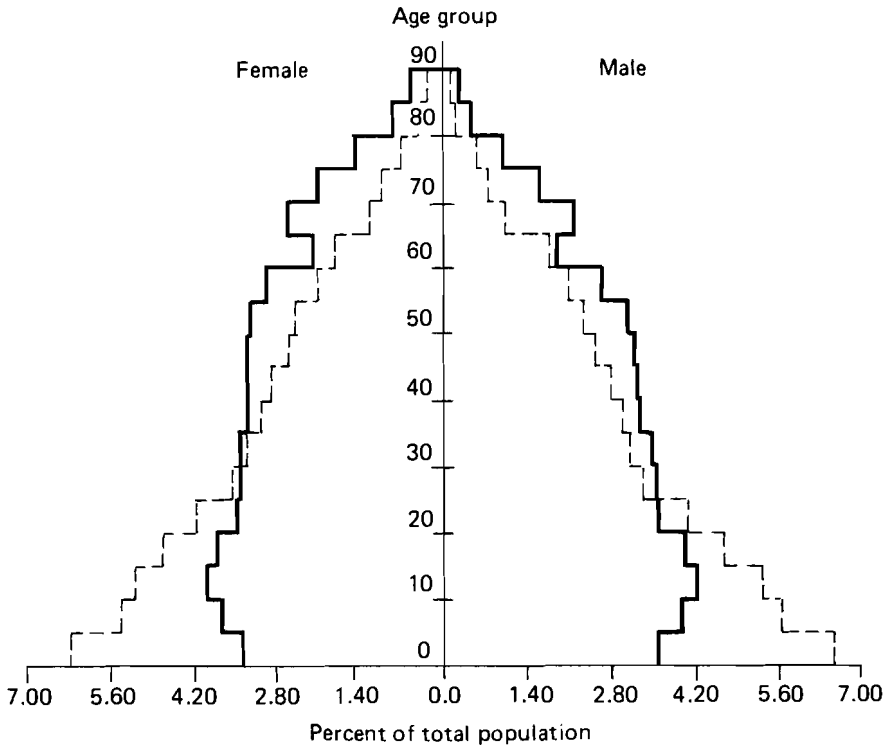


FIGURE 3 Population distribution by age group (percent): Italy, 1901 (- - -) and 1980 (——). Source: ISTAT 1975, 1981b.

of some prewar laws aimed essentially at reducing migration flows within Italy.

As of 1965, internal mobility has remained essentially constant (with some cyclical fluctuations) until the 1970s, when it began to decrease sharply owing to a worsening economic situation. The growing unemployment rate in all regions of Italy, resulting from the increase in international oil prices and the subsequent crisis in industrial production, appears to have restrained the process of population redistribution within the country.

In the following sections we shall review the regional patterns of fertility, mortality, and migration rates from the beginning of the century until 1979. We shall focus on the 20 region aggregation in order to show in greater detail the demographic trends that have evolved over the last 80 years in Italy.

2.2 Fertility

The demographic transition process, described in section 2, has not been uniform over the country as a whole. It began in the northern regions, which were more developed from a social and economic point of view, and then spread elsewhere in the country. The resulting regional differences in terms of fertility rates were particularly evident.

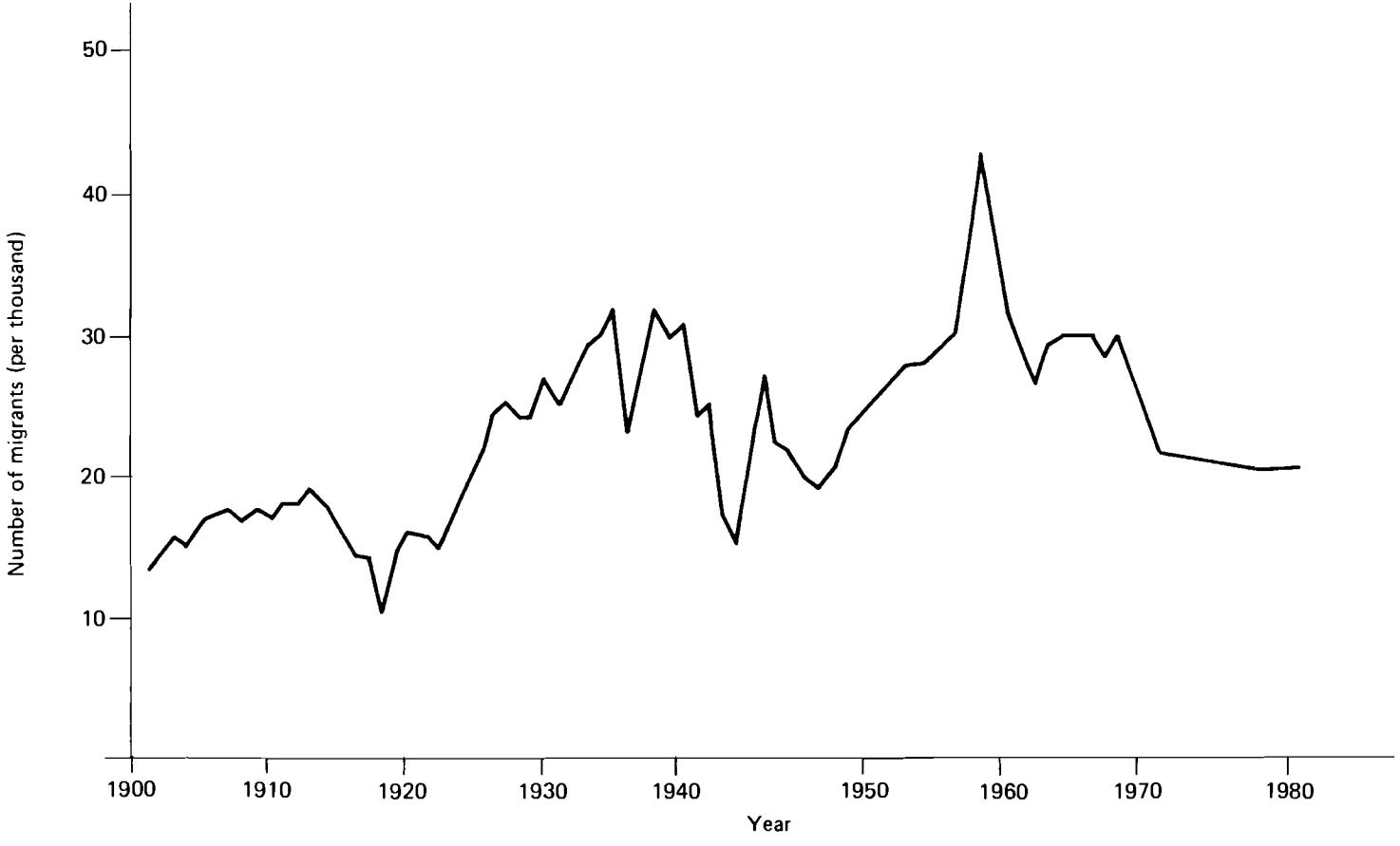


FIGURE 4 Intensity of internal migration (number of migrants per thousand population at mid-year): Italy, 1902–1980. Sources: Treves 1976 for the period 1902–1970; ISTAT 1971, 1981c for the period 1971–1980.

TABLE 1 Average annual crude birth rates (per thousand); 20 regions,[a] selected periods between 1900 and 1979.

Region	Period					
	1900–1902	1930–1932	1950–1952	1960–1962	1970–1972	1979
Northwest						
Piemonte	28.4	16.4	11.2	13.1	14.4	9.3
Valle d'Aosta			15.6	13.5	14.8	9.3
Lombardia	34.3	22.5	15.2	16.1	15.7	10.3
Liguria	27.6	16.1	10.3	12.4	12.2	8.5
Northeast						
Trentino-A.A.	–	22.2	18.8	19.2	17.2	12.6
Veneto	36.2	25.2	18.2	18.2	16.6	10.3
Friuli-V.G.	–	20.1	11.1	12.8	13.5	10.6
Emilia-R.	32.8	21.3	13.8	14.0	13.3	7.0
Central						
Toscana	30.3	19.2	13.1	13.5	13.4	8.3
Umbria	30.1	24.3	15.8	14.6	13.2	9.0
Marche	31.6	24.9	17.0	15.5	14.1	9.9
Lazio	30.9	26.0	18.2	19.2	17.1	10.7
South						
Abruzzi	31.9	28.9	19.6	16.6	15.5	11.7
Molise	32.9	30.8	21.2	18.1	15.1	10.3
Campania	31.7	31.8	24.5	24.6	21.8	12.9
Puglia	36.6	32.9	25.4	23.7	21.0	17.1
Basilicata	35.8	35.3	26.5	23.1	18.7	16.7
Calabria	32.4	32.1	26.8	24.1	19.2	14.5
Islands						
Sicilia	33.8	28.3	22.8	22.3	19.5	16.1
Sardegna	31.7	29.4	25.9	23.1	20.0	15.6
Italy	32.5	24.9	18.3	18.3	16.8	12.0
Standard deviation	2.5	5.5	5.3	4.2	2.9	3.7

[a]The crude birth rates for Piemonte and Valle d'Aosta are combined for the first two periods. Data for 17 regions only are given for the period 1900–1902.
SOURCE: ISTAT 1975, 1981b.

Table 1 and Figure 5 show the crude birth rates for the 20 regions of Italy. From the period 1900–1902 to the period 1930–1932, the national birth rate decreased from 32.5 to 24.9 per thousand because of the significantly reduced levels of the northern regions, which in some cases practically halved their initial rates (i.e., Piemonte's rate decreased from 28.4 to 16.4; Liguria's from 27.6 to 16.1). This reduction was far less substantial in the central regions and almost negligible in the southern regions (i.e., Basilicata's rate decreased from 35.8 to

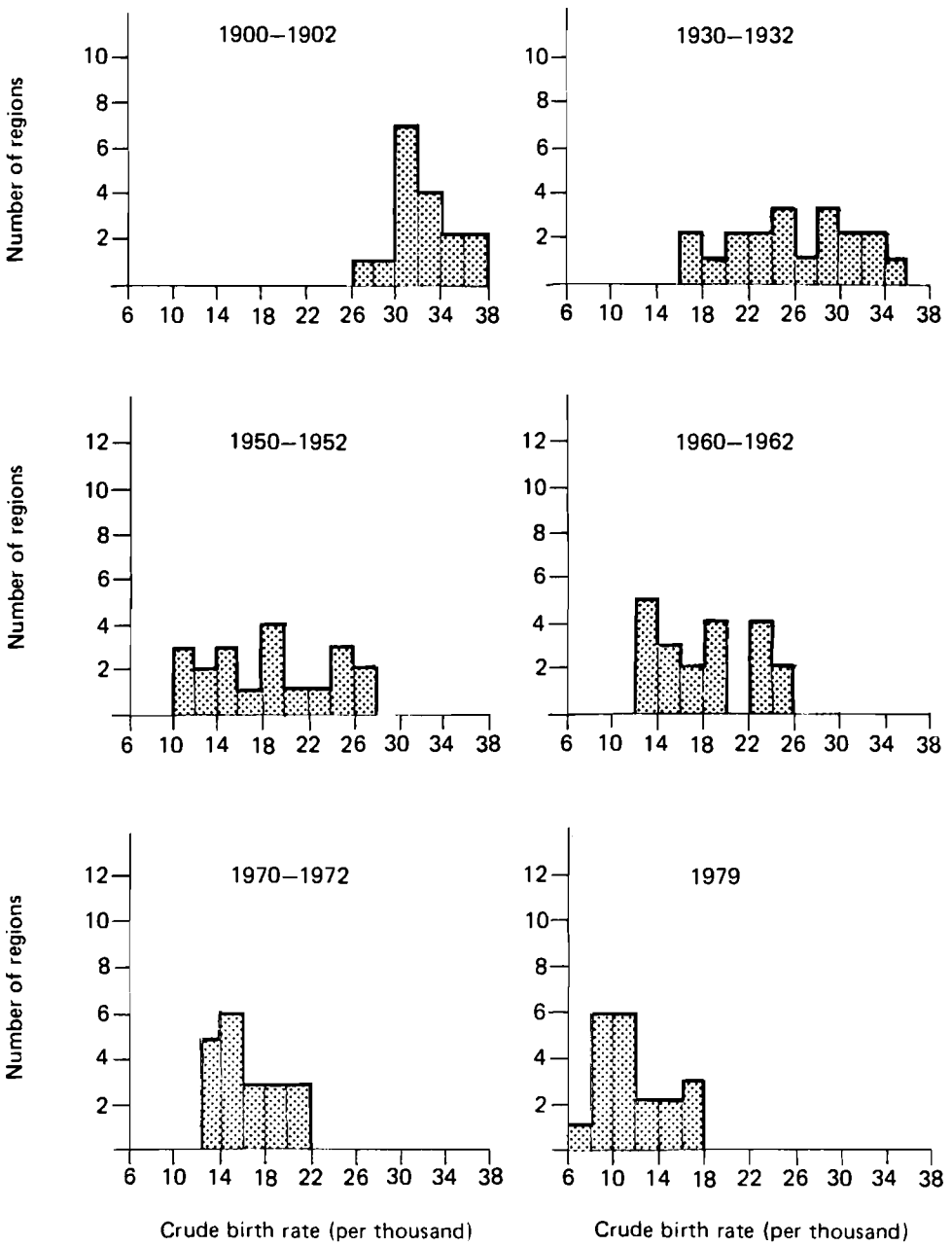


FIGURE 5 Frequency distribution of the 20 regions according to the level of fertility: Italy, 1900–1902 (17 regions), 1930–1932 (19 regions), 1950–1952, 1960–1962, 1970–1972, 1979. Source: ISTAT 1975, 1981b.

35.3; Campania's increased from 31.7 to 31.8). Such a disparity is reflected in the standard deviation of the regional rates, which increased from 2.5 in the period 1900–1902 to 5.5 in 1930–1932. Figure 5 clearly shows this increased dispersion of the regional rates.

From 1930–1932 to 1950–1952, fertility rates continued to decrease, but this time more uniformly across the country: the standard deviation was approximately the same for 1930–1932 (5.5) and 1951–1952 (5.3). Figure 5 shows the crude birth rate distribution shifting leftward toward the origin, while maintaining a constant shape and dispersion. A greater uniformity of behavior was attained during subsequent years, when the standard deviation fell to 4.2 in 1960–1962.

After 1962, the demographic transition process led to greatly reduced rates of fertility for all regions, with the exception of Piemonte, Valle d'Aosta, and Friuli-Venezia Giulia where a peak in fertility, probably because of the large in-migration flows from the south, can be observed for the period 1970–1972. The highest degree of uniformity among the regions was reached, during that time, with the standard deviation falling to 2.9. In the second half of the 1970s all regions experienced a general fall in fertility but to different extents, which produced an increase in the standard deviation of the regional rates.

2.3 Mortality

The decrease in mortality rates in Italy has been more uniform over the regions than that of fertility rates. Table 2 and Figure 6 show the distribution of the crude death rate (CDR) over the 20 Italian regions.

From 1900–1902 to 1930–1932, the death rate decreased remarkably for the nation as a whole. All regions contributed uniformly to that reduction, and the standard deviation remained practically constant, decreasing slightly from 2.4 to 2.3.

During the second period, the CDR continued to decline nationally (from 14.4 in 1930–1932 to 9.9 in 1950–1952), but with noticeable differences from region to region. The greater changes took place in the southern regions, which had the highest rates at the beginning of the period. Smaller changes took place in the northern regions, which already had lower CDR levels. Because of this behavior, a more uniform regional distribution of the CDR was attained in 1950–1952: the standard deviation for this period was 1.0, the lowest value during the century.

The national crude death rate was quite stable in the period 1950–1952, ranging from 9.1 to 12.2. This resulted from two combined processes: the gradual decline of age-specific death rates and the aging of the population, an effect that is confirmed by the regional distribution of the CDR. Beginning in 1950–1952, the relative position of the regions according to their crude death rates reversed: the CDR became lower in the southern than in the northern regions. There was also an increase in the dispersion of the regional distribution of the CDR: the standard deviation rose to 1.2 in 1960–1962 and to 1.5 in 1979.

One of the main causes of the change in CDRs was the faster aging of the population in the northern regions. This can be observed from Table 3, which shows the regional distribution of the aging ratio, defined as the ratio of the number of persons over age 60 to the number of persons below age 15. For example, in 1980 Piemonte had 102.4 inhabitants 60 years old and over for every 100 residents under 15 years of age. Liguria had the highest ratio (139.7) followed by Friuli-Venezia Giulia (118.8), Toscana (117.1) and Emilia-Romagna

TABLE 2 Average annual crude death rate (per thousand): 20 regions,[a] selected years between 1900 and 1979.

	Period					
Region	1900–1902	1930–1932	1950–1952	1960–1962	1970–1972	1979
Northwest						
Piemonte	20.0	13.6	12.2	12.1	11.8	10.5
Valle d'Aosta			11.8	11.2	11.5	10.7
Lombardia	23.0	14.4	10.5	10.3	9.9	9.6
Liguria	20.0	12.2	10.6	11.1	12.4	12.8
Northeast						
Trentino-A.A.	–	14.5	11.2	10.3	9.6	9.7
Veneto	19.6	12.1	9.4	9.6	9.5	9.5
Friuli-V.G.	–	13.6	7.8	11.3	12.4	12.5
Emilia-R.	21.7	12.7	9.4	9.8	10.5	10.8
Central						
Toscana	20.8	12.6	10.0	10.4	10.6	11.0
Umbria	20.8	13.5	9.1	9.2	10.2	10.1
Marche	21.5	13.3	9.1	8.9	9.5	9.7
Lazio	22.5	13.4	8.5	8.2	7.8	8.3
South						
Abruzzi	21.0	15.2	9.4	9.1	9.8	9.6
Molise	24.8	18.7	10.9	9.5	10.4	10.4
Campania	24.0	16.8	9.6	8.8	8.4	8.0
Puglia	27.4	17.9	9.8	8.6	8.1	7.5
Basilicata	28.2	20.7	10.8	8.1	8.3	8.5
Calabria	23.3	15.2	9.3	7.9	8.1	8.0
Islands						
Sicilia	23.8	15.9	9.9	9.0	9.2	8.9
Sardegna	22.6	15.2	9.3	7.9	8.3	8.0
Italy	22.4	14.4	9.9	9.6	9.6	9.5
Standard deviation	2.4	2.3	1.0	1.2	1.4	1.5

[a]The crude death rates for Piemonte and Valle d'Aosta are combined for the first two periods. Data for 17 regions only are given for the period 1900–1902.
SOURCE: ISTAT 1975, 1981b.

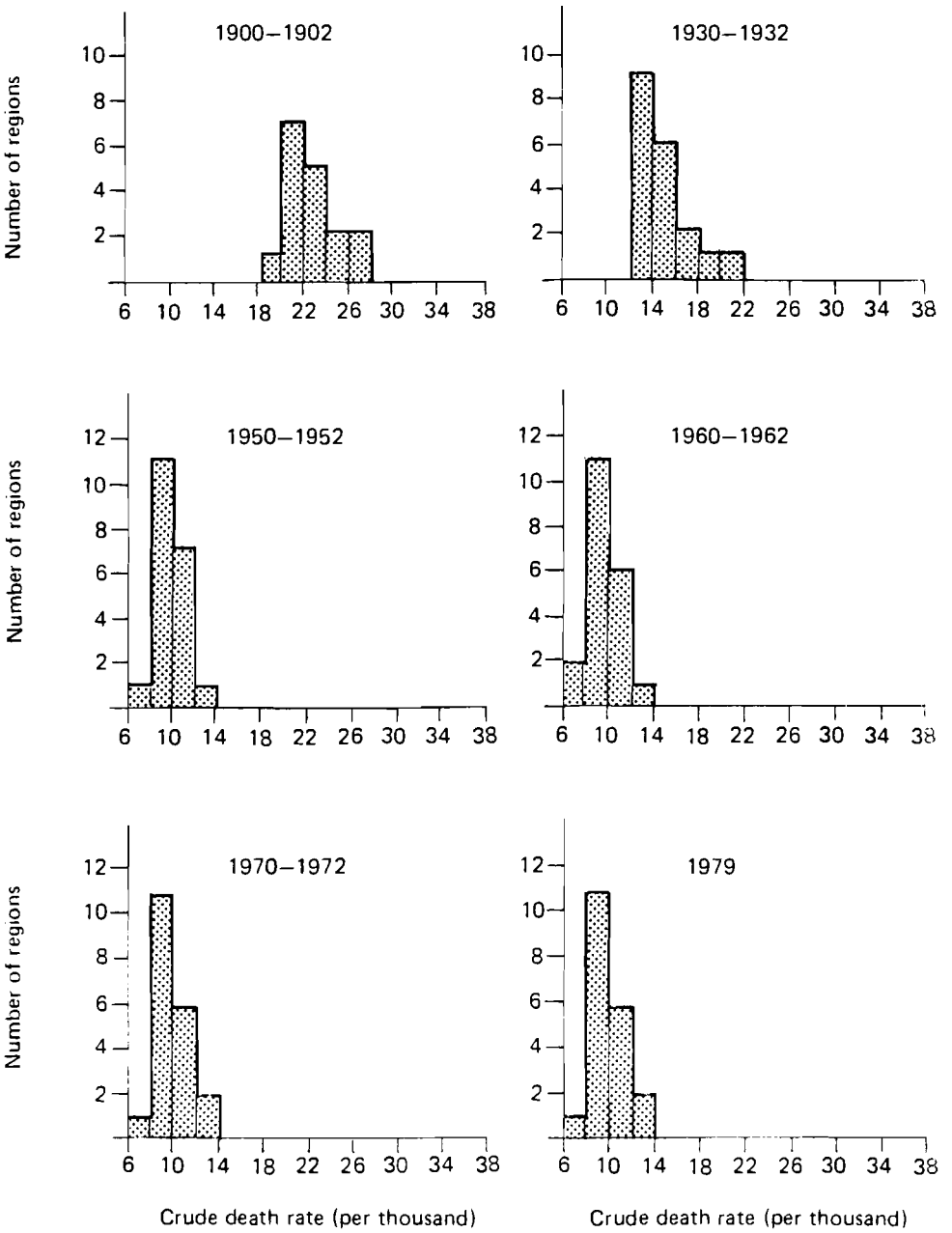


FIGURE 6 Frequency distribution of the 20 regions according to the level of mortality: Italy, 1900–1902 (17 regions), 1930–1932 (19 regions), 1950–1952, 1960–1962, 1970–1972, 1979. Source: ISTAT 1975, 1981b.

TABLE 3 Aging ratios (number of persons older than age 60 divided by the number of persons younger than age 15 and multiplied by 100): 20 regions,[a] selected years between 1901 and 1980.

Region	Year 1901	1931	1951	1961	1971	1980
Northwest						
Piemonte	29.7	58.4	92.7	102.1	97.7	102.4
Valle d'Aosta			57.2	69.6	83.3	90.9
Lombardia	23.8	33.9	53.7	65.6	69.8	77.8
Liguria	32.7	51.0	86.9	110.0	120.2	139.7
Northeast						
Trentino-A.A.	–	38.4	44.6	52.7	61.6	70.4
Veneto	27.5	29.8	40.7	54.9	64.3	74.1
Friuli-V.G.	–	38.9	54.6	87.5	106.3	118.8
Emilia-R.	29.0	36.8	57.4	78.6	96.9	115.5
Central						
Toscana	31.8	43.6	67.3	88.9	106.2	117.1
Umbria	32.8	35.8	49.4	67.6	90.2	108.5
Marche	34.3	36.2	47.7	63.8	83.0	100.1
Lazio	23.6	32.0	40.0	48.7	56.6	67.9
South						
Abruzzi	34.5	39.3	43.3	56.8	75.4	87.6
Molise			41.5	54.0	79.3	90.8
Campania	32.1	32.0	30.9	35.0	42.8	46.9
Puglia	24.5	31.1	31.9	36.9	46.5	50.8
Basilicata	30.7	31.6	30.5	35.4	53.9	62.8
Calabria	25.8	31.9	29.3	34.7	50.0	59.0
Islands						
Sicilia	21.7	36.1	39.2	44.1	57.5	63.1
Sardegna	23.4	31.5	34.2	39.2	49.8	55.1
Italy	27.8	36.3	46.4	56.8	68.1	76.6
Standard deviation	4.2	7.2	17.0	22.0	22.2	26.2

[a]The aging ratios for Piemente and Valle d'Aosta are combined for the first two periods. Data for 17 regions only are given for the period 1900–1902.
SOURCE: ISTAT 1975, 1981b.

(115.5). The southern regions, on the other hand, had a much smaller proportion of elderly people. In 1980, Campania had only 46.9 inhabitants 60 years old and over for every 100 persons in the 0–14 age group. Other low values (50.8, Puglia; 55.1, Sardegna; 59.0, Calabria) show a sharp contrast with the high values of the north. The large age discrepancy between the north and south has a significant impact on the demands of the society and therefore is an important element in policy planning. An older population requires more health

facilities and fewer schools, for example, than a younger population. The evolution of this index also shows that as the national average goes up, the regional variation increases; the standard deviation, in fact, rose from 4.2 in 1901 to 26.2 in 1980 (Table 3). Such a trend implies that decision makers at the national level should be aware of regional differences when formulating plans for social services.

2.4 Migration

Table 4 shows the regional distribution of net migration rates, including national and international migration, for the six intercensal periods between 1901 and 1979. Although this study does not deal with international migration, it must be noted that emigration has played an important role in Italy's demographic development. Since the 1800s, over 9 million people have migrated from the southern regions alone, many have moved to industrial areas within the country, but the majority have emigrated abroad (Golini 1977). Table 4 shows that Italy has always had a negative net migration balance with the rest of the world, largely because of the lack of employment opportunities offered within the country. Between 1911 and 1931, the emigration rate was a very high −4.2 per thousand; during the world wars, however, the rate decreased because of the governmental policies that were enacted in order to encourage people to remain in their native land. From 1951 to 1971, the net migration rate was at a constant average level of −2.1 per thousand – an average that hides the wide fluctuations that occurred over the 20-year period. In recent years, Italy has experienced a gradual reduction in its emigration rate, attaining a positive net rate from 1975 on. This reduction is primarily a result of the return of previous emigrants and of an increasing immigration of unskilled workers from the Mediterranean area.

At the 20 region level, substantial differences are found between the northern regions and the central and southern regions, with the exception of Lazio. The northern regions have always had positive or slightly negative net migration rates, whereas the southern regions have always had negative rates, often very high. For the period 1901–1971, only Lazio and Liguria consistently had positive net migration rates. In the case of Lazio, this phenomenon was largely due to the location of Rome, which lies within the region. In its role as the national administrative center, Rome has always served as a source of employment in public services and public administration and thus has attracted migrants both from the rural areas of the Lazio region and from the central and southern regions. In the case of Liguria, this phenomenon resulted from the high level of regional industrial development, which was reached early in this century. In both cases the migration flows were part of a strong urbanization process.

In general, during the period 1951–1971 there were interregional migration flows of unprecedented intensity. A large proportion of the population of

TABLE 4 Average annual net migration rates (per thousand): 20 regions,[a] intercensal periods between 1901 and 1979.

Region	Period 1901–1911	1911–1931	1931–1951	1951–1961	1961–1971	1972–1979
Northwest						
Piemonte	–4.6	–1.4	0.7	10.9	9.8	1.1
Valle d'Aosta	–4.9	–1.2	0.0	4.2	4.0	3.5
Lombardia	1.0	–0.3	2.5	7.6	7.6	1.6
Liguria	7.2	5.2	4.1	10.1	5.4	0.1
Northeast						
Trentino-A.A.	2.3	–6.9	–2.9	–0.6	–2.8	–0.2
Veneto	3.5	–12.7	–6.7	–10.4	–1.9	1.6
Friuli-V.G.	7.8	–2.4	–4.6	–3.8	–1.2	3.5
Emilia-R.	–2.4	–2.4	–2.0	–0.6	0.8	2.4
Central						
Toscana	–4.0	–3.0	–0.1	1.2	2.1	3.0
Umbria	–6.8	–5.9	–1.2	–6.9	–7.1	2.4
Marche	–5.7	–7.3	–4.4	–8.2	–5.1	1.1
Lazio	3.7	6.1	7.9	6.9	6.2	1.3
South						
Abruzzi	–7.2	–9.0	–6.4	–15.1	–11.1	2.2
Molise				–22.9	–18.8	0.5
Campania	–4.1	–6.1	–2.7	–6.7	–10.3	–4.5
Puglia	–2.1	–6.0	–2.6	–10.1	–11.2	–1.6
Basilicata	–11.3	–8.5	–4.8	–14.2	–21.1	–6.4
Calabria	–5.8	–8.0	–8.4	–18.4	–18.1	–5.3
Islands						
Sicilia	–2.6	–9.3	–4.7	–8.8	–13.8	–3.9
Sardegna	–2.9	–3.9	–1.3	–6.2	–11.0	–1.4
Italy (external migration)	–1.7	–4.2	–1.4	–2.1	–2.1	–0.1
Standard deviation	4.9	4.7	3.9	9.3	9.1	3.8

[a]The net migration rates for Abruzzi and Molise are combined for the first three periods.

SOURCE: ISTAT 1975, 1981b.

southern Italy moved to the northern regions, which were experiencing rapid industrialization. This process required a labor supply that was impossible to satisfy with the local natural growth of the population. The measure of the dispersion of the regional distribution of migration rates reflects this situation: the standard deviation decreased from 4.9 in 1901–1911, to 4.7 in 1911–1931, and to 3.9 in 1931–1951. It then increased sharply to 9.3 in 1951–1961, decreased to 9.1 in 1961–1971, and fell still further to 3.8 in 1972–1979.

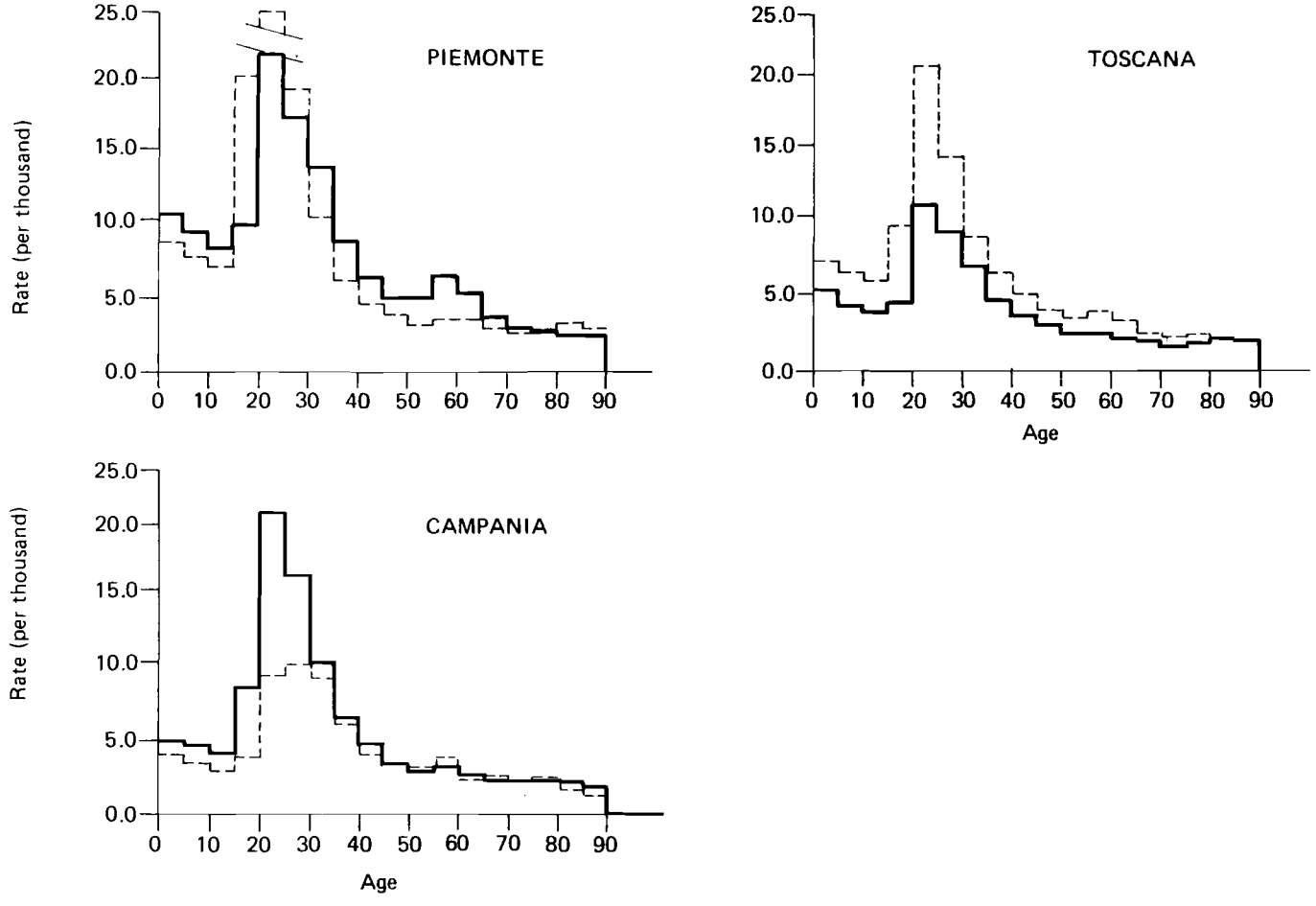


FIGURE 7 Observed in-migration (- - -) and out-migration (——) rates (per thousand): Piemonte, Toscana, and Campania, 1978.

From 1951 to 1971, some southern regions experienced a real "escape" of the population: in Molise the net migration rate was −22.9 per thousand for 1951–1961 and −18.8 for 1961–1971; in Calabria −18.4 and −18.1, and in Basilicata −14.2 and −21.1. From a demographic, social, and economic point of view, it was an extremely violent process that caused the depopulation of many rural areas and the uncontrolled growth of the metropolitan areas of destination. During the years of the more intense migration movements, Italy assumed the characteristics of a "dual" country, divided into two completely different parts: a dynamic north, with modern industries and rapid growth from an economic and demographic point of view; a stagnant south, based on a backward agricultural economy and in demographic decline, all the while maintaining a natural growth rate greater than that of the nation as a whole.

This process slowed during the late 1960s and early 1970s, partially because of the effect of stabilizing governmental policies. The main cause, however, was probably the growth of external diseconomies created by the process itself. Particularly in the in-migration areas, the uncontrolled urban growth and the consequent increase in social costs endangered further industrial development of the northern regions. But by 1978, the mobility patterns described in this section were still clearly seen. In Piemonte of the Northwest, for example, in-migration rates were still higher than out-migration rates, especially in the 20–35 age groups. Toscana of the Central region showed similar trends, and Campania of the South experienced a continuation of its heavy out-migration streams (Figure 7).

2.5 Regional Population Dynamics

In this section we analyze the impact of changing patterns of fertility, mortality, and migration on the regional dynamics of the population.

Table 5 shows the regional distribution of the rates of natural increase of the population from 1901 to 1979. During this period, only three regions had negative rates, although of extremely low values (Piemonte, 1951–1961; Friuli-Venezia Giulia and Liguria, 1972–1979).

At the national level, the rate of natural increase fell from 10.5 in 1910–1911 to 8.8 in 1911–1931 and then remained almost constant at that level until 1972. The standard deviation decreased from 3.8 in the first period to 3.2 in the second, whereupon it increased to 4.3 in 1931–1951 and to 5.3 in 1951–1961. This phenomenon can be attributed to the older ages and the patterns of behavior that developed in the central and northern regions. In these regions, the rate of natural increase went down continuously between 1901 and 1961 with few exceptions, whereas in the southern regions there were often remarkable increases, as, for example, in Campania (from 10.0 to 15.0). In many instances the natural increase rates of the northern regions were not even half those of the southern regions. This phenomenon would have led to extremely high population concentrations in the south had it not been for the heavy migration flows from the south to the north.

TABLE 5 Rates of natural increase (per thousand): 20 regions,[a] intercensal periods between 1901 and 1979.

Region	Period					
	1901–1911	1911–1931	1931–1951	1951–1961	1961–1971	1972–1979
Northwest						
Piemonte	7.1	2.0	0.2	–0.2	2.9	0.1
Valle d'Aosta	1.2	2.4	6.2	3.1	3.9	0.6
Lombardia	11.7	7.1	5.8	4.9	7.3	3.2
Liguria	7.7	3.4	0.8	0.1	1.3	–3.2
Northeast						
Trentino-A.A.	0.7	8.6	7.0	8.1	9.5	4.0
Veneto	15.8	14.9	11.2	7.9	8.7	4.0
Friuli-V.G.	16.4	6.8	6.3	1.9	2.0	–1.7
Emilia-R.	12.1	9.5	5.8	4.0	4.1	0.1
Central						
Toscana	10.1	7.0	4.1	2.8	3.5	0.4
Umbria	11.9	11.0	8.2	5.5	4.4	1.7
Marche	10.3	10.0	8.5	6.5	5.8	2.7
Lazio	7.6	9.0	11.3	10.8	11.5	6.4
South						
Abruzzi	9.8	8.6	9.6	8.3	7.0	4.1
Molise				8.4	6.4	3.6
Campania	10.0	11.0	12.8	15.0	15.0	11.0
Puglia	11.9	11.4	14.6	14.8	14.4	11.2
Basilicata	9.2	9.7	13.7	14.9	12.1	8.7
Calabria	11.1	12.3	14.8	15.8	13.1	9.4
Islands						
Sicilia	9.0	9.0	10.8	12.9	11.5	8.5
Sardegna	11.3	9.5	14.1	16.0	13.4	9.7
Italy	10.5	8.8	8.6	8.3	8.7	4.8
Standard deviation	3.8	3.2	4.3	5.3	4.3	4.3

[a]The natural increase rates for Abruzzi and Molise are combined for the first three periods.
SOURCE: ISTAT 1975, 1981b.

A balancing effect began to take place as a result of this migration during the period 1961–1971. The regional distribution became more uniform because of the reversal of the previous regional trends; rates of natural increase rose in the north and fell in the south, thus reducing the standard deviation from 5.3 to 4.3. Then in 1972–1979, these rates decreased across all regions without significantly altering the shape of the regional distribution.

TABLE 6 Growth rates (per thousand): 20 regions,[a] intercensal periods between 1901 and 1979.

Region	Period 1901–1911	1911–1931	1931–1951	1951–1961	1961–1971	1972–1979
Northwest						
Piemonte	2.8	0.6	0.9	10.7	12.5	1.2
Valle d'Aosta	–3.6	1.2	6.2	7.2	7.8	4.1
Lombardia	12.6	6.8	8.0	12.1	14.4	4.8
Liguria	14.4	8.3	4.8	10.2	6.6	–3.1
Northeast						
Trentino-A.A.	2.9	2.8	4.5	7.6	6.9	3.8
Veneto	18.8	5.6	5.8	–1.8	7.0	5.6
Friuli-V.G.	23.2	4.7	2.2	–1.8	0.8	1.8
Emilia-R.	9.9	7.5	4.1	3.4	4.8	2.5
Central						
Toscana	6.4	4.4	4.0	3.9	5.5	3.4
Umbria	5.9	6.3	7.2	–1.1	–2.4	4.1
Marche	5.0	4.0	4.8	–1.2	0.9	3.8
Lazio	11.1	14.2	17.8	17.1	17.1	7.7
South						
Abruzzi	3.2	1.0	4.3	–5.7	–3.3	6.3
Molise				–12.7	–11.2	4.1
Campania	6.3	6.2	10.8	9.2	6.1	6.5
Puglia	10.0	6.7	12.6	6.0	4.6	9.6
Basilicata	–1.2	2.8	10.1	2.5	–6.6	2.3
Calabria	5.9	6.1	8.6	0.0	–2.8	4.1
Islands						
Sicilia	6.6	1.2	7.0	5.1	–0.9	4.6
Sardegna	8.7	6.3	13.1	10.7	3.8	8.3
Italy	8.9	5.3	7.3	6.4	6.7	4.7
Standard deviation	6.3	3.2	4.1	6.8	6.8	2.7

[a]The growth rates for Abruzzi and Molise are combined for the first three periods.
SOURCE: ISTAT 1975, 1981b.

Table 6 shows the spatial distribution of the regional population growth rates, obtained as a sum of the rates of natural increase and of net migration. The negative rates shown by some regions, particularly during 1961–1971, reflect the intensity of out-migration flows. A comparison of the standard deviations for the regional distribution of both the rates of natural increase and total population growth (Tables 5 and 6, respectively) reveals the effect of interregional migration flows.

TABLE 7 Populations (thousands) and percentage shares (in parentheses): 20 regions, selected years between 1901–1980.

Region	Year 1901	1931	1951	1961	1971	1980
Northwest						
Piemonte	3 320	3 458	3 518	3 914	4 432	4 531
	(9.8)	(8.4)	(7.4)	(7.7)	(8.2)	(7.9)
Valle d'Aosta	84	83	94	101	109	115
	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Lombardia	4 315	5 596	6 566	7 406	8 543	8 942
	(12.8)	(13.6)	(13.8)	(14.6)	(15.8)	(15.7)
Liguria	1 046	1 423	1 567	1 735	1 854	1 845
	(3.1)	(3.5)	(3.3)	(3.4)	(3.4)	(3.2)
Northeast						
Trentino-A.A.	612	666	729	786	842	876
	(1.8)	(1.6)	(1.5)	(1.5)	(1.6)	(1.5)
Veneto	2 586	3 487	3 918	3 847	4 123	4 351
	(7.7)	(8.5)	(8.3)	(7.6)	(7.6)	(7.6)
Friuli-V.G.	850	1 174	1 226	1 204	1 214	1 245
	(2.5)	(2.9)	(2.6)	(2.4)	(2.2)	(2.2)
Emilia-R.	2 547	3 268	3 544	3 667	3 847	3 964
	(7.5)	(8.0)	(7.5)	(7.2)	(7.1)	(6.9)
Central						
Toscana	2 503	2 914	3 159	3 286	3 473	3 600
	(7.4)	(7.1)	(6.7)	(6.5)	(6.4)	(6.5)
Umbria	579	696	804	795	776	800
	(1.7)	(1.7)	(1.7)	(1.6)	(1.4)	(1.4)
Marche	1 089	1 240	1 364	1 348	1 360	1 416
	(3.2)	(3.0)	(2.9)	(2.7)	(2.5)	(2.5)
Lazio	1 586	2 349	3 341	3 959	4 689	5 059
	(4.7)	(5.7)	(7.0)	(7.8)	(8.7)	(8.9)
South						
Abruzzi	1 465	1 545	1 277	1 207	1 167	1 240
	(4.3)	(3.8)	(2.7)	(2.4)	(2.2)	(2.2)
Molise			407	358	320	324
			(0.8)	(0.7)	(0.6)	(0.6)
Campania	2 914	3 509	4 346	4 761	5 059	5 458
	(8.6)	(8.5)	(9.1)	(9.4)	(9.3)	(9.6)
Puglia	1 987	2 508	3 221	3 421	3 583	3 917
	(5.9)	(6.1)	(6.8)	(6.8)	(6.6)	(6.9)
Basilicata	492	514	628	644	603	619
	(1.5)	(1.3)	(1.3)	(1.3)	(1.1)	(1.1)
Calabria	1 439	1 723	2 044	2 045	1 988	2 078
	(4.3)	(4.2)	(4.3)	(4.1)	(3.7)	(3.6)
Islands						
Sicilia	3 568	3 906	4 487	4 721	4 681	4 999
	(10.6)	(9.5)	(9.4)	(9.3)	(8.7)	(8.8)
Sardegna	796	984	1 276	1 419	1 476	1 602
	(2.4)	(2.4)	(2.7)	(2.8)	(2.7)	(2.8)
Italy	33 778	41 043	47 516	50 624	54 139	56 981
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

SOURCE: ISTAT 1975, 1981b.

Table 7 shows the distribution of the population and population shares over the 20 regions for selected years between 1901 and 1980. Two regions (Lazio and Lombardia) had a high increase in their shares over the period as a result of both natural increase and in-migration, while other regions (Liguria, Campania, Puglia, Sardegna) had limited increases (less than 1 percent). All the other regions had reduced or fixed population shares over the period. Among them, Piemonte showed a decrease between 1901 and 1951, from 9.8 to 7.4 percent. Since 1951, because of an intense in-migration flow, there has been a slight but not stable recovery. Sicilia, however, was not able to recover from its loss due to migration. In 1901 its percentage share of the population was 10.6 – a share that continually dropped over the years to the recent 8.8 percent in 1980.

Tables 8 and 9 show the age structures of the regional populations in 1971 and 1978, respectively, and allow us to compare the combined effects of natural increase and net migration on each region. Along with the individual percentages we include the standard deviations for each region. Standard deviations identify the variance among percentage shares across regions for each age group. Although such values give some indication of the amount of variation, they can be deceiving unless compared with each age group for Italy as a whole. For example, the 1971 standard deviation for the 20–24 age group is 0.50 and 0.51 for the 70–74 age group. The percentage shares, however, of these age groups are quite different (7.6 and 3.1, respectively). In order to compensate for the different weights of the age groups, the standard deviations have been divided by their corresponding national percentage values. We see from this calculation that instead of being similar, the spatial dispersions of the age groups 20–24 (6.6 percent) and 70–74 (16.5 percent) are quite different.

The values obtained for both years are high for the first age groups, low for the middle groups, and high again for the oldest groups, reaching a maximum for age 80 and over. The shapes of the dispersion curves (Figure 8) reflect the demographic transition process that took place earlier in the northern regions and later in the southern ones. That process resulted in a greater aging of the population in the former regions, which gave rise to high regional dispersion for the first and last age groups. The lower dispersion in the middle age groups depends partially on the usual stability of these age groups and partially on the population redistribution effects caused by interregional migration flows.

3 MULTIREGIONAL POPULATION ANALYSIS

The demographic dynamics of the past, presented in section 2, manifest the extensive movements of Italy's population, which were stimulated by social and economic regional disparities. In order to examine these dynamics in greater detail, we now turn to a multiregional analysis for the year 1978, using methods developed by Rogers (1975) and his colleagues and computer programs elaborated at IIASA (Willekens and Rogers 1978).

TABLE 8 Populations by age group (percent)[a]: 20 regions, 1971.

Region	Age group 0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80+	Total
Northwest																		
Piemonte	7.0	7.1	6.2	5.9	7.1	6.7	7.7	7.2	7.3	6.9	5.0	6.0	6.1	5.1	3.9	2.5	2.3	100.0
Valle d'Aosta	7.1	7.3	6.5	6.4	7.5	7.0	7.7	7.1	7.5	7.1	5.3	6.0	5.9	4.5	3.2	2.1	1.8	100.0
Lombardia	7.9	8.1	7.0	6.5	7.5	7.1	8.1	7.4	7.2	6.8	4.5	5.5	5.5	4.3	3.0	1.8	1.5	100.0
Liguria	6.1	6.6	5.8	5.3	6.2	6.1	7.1	6.9	7.4	7.4	5.9	6.8	6.8	5.6	4.3	3.0	2.7	100.0
Northeast																		
Trentino-A.A.	8.7	9.2	8.2	7.4	7.6	7.1	7.0	6.1	6.5	6.6	4.5	4.9	5.4	4.2	3.1	1.9	1.6	100.0
Veneto	8.3	8.8	7.0	7.1	7.6	6.9	7.2	6.6	6.8	6.7	4.7	5.4	5.2	4.2	3.1	1.9	1.7	100.0
Friuli-V.G.	6.6	6.0	6.3	5.8	7.0	6.7	7.3	6.3	6.5	6.2	5.6	6.4	7.0	5.5	4.0	2.5	2.3	100.0
Emilia-R.	6.5	6.9	6.4	6.0	6.9	6.5	7.3	7.0	7.3	7.6	5.7	6.6	6.3	4.9	3.6	2.4	2.1	100.0
Central																		
Toscana	6.5	6.9	6.2	5.8	6.9	6.4	7.2	6.7	7.2	7.4	5.7	6.2	6.4	5.3	4.0	2.7	2.5	100.0
Umbria	6.5	7.1	6.7	6.5	7.2	6.2	7.0	6.9	7.5	7.9	5.9	6.4	5.9	4.5	3.4	2.3	2.1	100.0
Marche	7.0	7.5	7.2	6.9	7.1	6.1	7.0	6.8	7.3	7.4	5.4	6.2	5.9	4.5	3.4	2.3	2.0	100.0
Lazio	8.4	8.8	7.0	7.1	7.6	6.8	7.6	7.3	7.2	6.9	5.0	5.3	4.8	3.6	2.6	1.7	1.5	100.0
South																		
Abruzzi	7.5	8.2	7.9	7.6	7.6	5.7	6.3	6.5	7.0	6.9	5.2	5.7	5.6	4.5	3.5	2.2	2.1	100.0
Molise	7.5	8.3	8.2	8.1	7.4	5.0	5.8	6.4	6.8	6.7	4.9	5.9	6.0	5.0	3.7	2.2	2.1	100.0
Campania	10.1	10.6	9.6	8.6	8.2	6.4	6.3	6.2	6.3	5.9	4.2	4.5	4.3	3.4	2.5	1.5	1.4	100.0
Puglia	10.0	10.3	9.5	8.4	8.2	6.4	6.4	6.2	6.2	5.8	4.2	4.5	4.5	3.5	2.6	1.7	1.6	100.0
Basilicata	9.1	9.7	9.6	8.8	7.8	5.2	6.2	6.6	6.6	6.1	4.2	4.7	5.1	3.9	3.0	1.8	1.6	100.0
Calabria	9.4	10.1	10.0	9.1	8.2	5.6	5.9	6.2	6.1	5.8	4.2	4.7	4.7	3.7	2.8	1.8	1.7	100.0
Islands																		
Sicilia	9.1	9.3	9.1	8.1	7.9	6.0	6.3	6.3	6.3	6.2	4.5	5.1	5.0	4.0	3.0	1.9	1.9	100.0
Sardegna	9.6	10.2	9.7	9.0	8.0	6.5	6.4	6.0	5.9	5.5	4.1	4.4	4.5	3.6	2.7	1.9	2.0	100.0
Italy	8.2	8.5	7.7	7.1	7.6	6.5	7.1	6.7	6.9	6.7	4.8	5.5	5.4	4.3	3.1	2.1	1.8	100.0
Standard deviation	1.26	1.29	1.36	1.16	0.50	0.58	0.63	0.41	0.50	0.65	0.60	0.75	0.76	0.66	0.51	0.37	0.35	
Standard deviation/Italy (percent)	15.4	15.2	17.7	16.3	6.6	8.9	8.9	6.1	7.2	9.7	12.5	13.6	14.1	15.3	16.5	17.6	19.4	

[a]These percentages are taken from ISTAT (1976) and may vary slightly from those calculated from Appendix A, which also includes the 80–85 age group.
SOURCE: ISTAT 1976.

TABLE 9 Populations by age group (percent)[a]: 20 regions, 1978.

Region	Age group 0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80+	Total
Northwest																		
Piemonte	6.1	6.8	7.1	6.3	5.9	6.9	6.9	7.4	7.1	7.1	6.6	5.2	4.9	5.4	4.2	2.9	2.5	100.0
Valle d'Aosta	6.0	6.9	7.3	6.6	6.6	7.5	7.0	7.6	6.8	7.2	6.6	3.5	4.8	5.0	3.6	2.3	1.7	100.0
Lombardia	6.7	7.5	8.0	7.0	6.4	7.2	7.1	7.7	7.1	6.8	6.4	4.9	4.4	4.7	3.5	2.2	1.7	100.0
Liguria	4.9	6.0	6.7	6.0	5.5	6.1	6.4	7.0	6.8	7.2	7.2	6.2	5.8	6.1	4.8	3.3	2.9	100.0
Northeast																		
Trentino-A.A.	6.9	6.2	9.0	8.1	7.2	7.2	6.8	5.9	5.8	6.0	8.1	4.8	3.7	4.8	3.5	2.3	1.8	100.0
Veneto	6.9	7.8	8.5	7.8	7.1	7.3	6.9	6.9	6.3	6.2	6.2	4.9	4.3	4.6	3.4	2.3	1.8	100.0
Friuli-V.G.	5.6	6.5	7.0	6.4	5.8	6.7	6.8	7.2	6.3	6.3	6.8	6.1	5.2	6.3	4.7	3.1	2.5	100.0
Emilia-R.	5.5	6.4	6.9	6.5	6.1	6.7	6.6	3.0	6.5	6.9	7.2	6.1	5.4	5.7	4.1	2.8	2.5	100.0
Central																		
Toscana	5.7	6.4	6.8	6.3	5.9	6.7	6.7	6.9	6.6	6.8	7.0	6.1	5.1	5.8	4.4	3.1	2.7	100.0
Umbria	6.0	6.5	6.8	6.6	6.4	6.9	6.2	6.7	6.7	7.0	7.5	6.2	5.4	5.5	3.9	2.6	2.3	100.0
Marche	6.2	6.7	7.3	7.0	6.7	6.9	6.2	6.6	6.7	6.8	7.2	5.6	5.3	5.4	3.6	2.6	2.3	100.0
Lazio	7.2	7.9	8.5	7.6	7.0	7.1	6.8	7.1	6.9	6.7	6.4	5.1	4.3	4.2	3.0	1.9	1.5	100.0
South																		
Abruzzi	6.8	7.2	7.9	7.6	7.5	7.3	5.8	5.6	6.3	6.5	6.6	5.4	4.7	5.1	5.8	2.7	8.2	100.0
Molise	6.9	7.1	7.9	8.0	7.8	7.3	5.3	5.3	6.1	6.4	6.3	5.2	4.8	3.4	4.2	2.9	2.2	100.0
Campania	9.4	9.4	9.9	9.1	8.0	7.4	6.2	5.8	5.6	5.8	5.4	4.1	3.6	3.6	2.7	1.7	1.3	100.0
Puglia	9.3	9.1	9.6	8.9	8.0	7.6	6.3	5.8	5.7	5.6	5.3	4.2	3.6	3.9	2.8	1.9	1.5	100.0
Basilicate	8.3	8.5	9.2	9.0	8.0	7.1	5.0	5.6	6.3	6.1	5.8	4.4	3.9	4.5	3.4	2.2	2.7	100.0
Calabria	8.5	8.8	9.5	9.4	8.5	7.4	5.4	5.4	5.7	5.8	5.4	4.2	3.9	4.2	3.2	2.2	1.9	100.0
Islands																		
Sicilia	8.5	8.5	8.8	8.6	7.7	7.4	6.0	5.8	5.8	5.9	5.6	4.5	4.2	4.4	3.3	2.2	1.9	100.0
Sardegna	8.9	8.9	9.5	9.1	8.5	7.6	6.2	6.0	5.5	5.4	5.0	4.0	3.6	3.8	3.0	2.0	2.0	100.0
Italy	7.2	7.7	7.2	7.6	6.5	7.1	6.5	6.7	6.4	6.4	6.2	5.0	4.4	4.7	3.5	2.4	2.0	100.0
Standard deviation	1.35	1.06	1.09	1.12	0.95	0.38	0.58	0.78	0.51	0.56	0.54	0.48	0.68	0.77	0.61	0.45	0.25	
Standard deviation/Italy (percent)	18.6	13.6	13.2	14.6	13.7	5.2	8.8	11.5	7.9	8.6	8.5	9.7	15.1	16.0	17.3	18.7	24.1	

[a]These percentages are taken from ISTAT (1976) and may vary slightly from those calculated from Appendix A, which also includes the 80–85 age group.
SOURCE: ISTAT 1979.

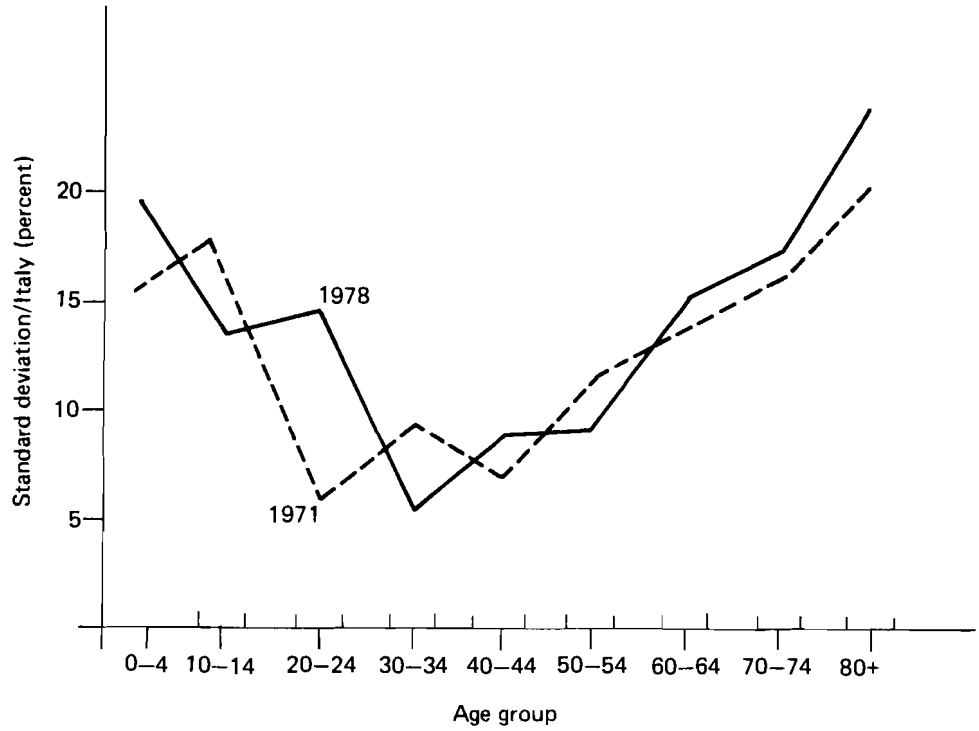


FIGURE 8 Spatial dispersion of the total population by age group (standard deviation divided by the corresponding national value): Italy, 1971 (- - -) and 1978 (——).

When a country is aggregated into regions for a multiregional study, it is useful to choose a functional division that reflects spatial coherence. Yet migration data are generally available only for divisions such as administrative districts or states. In the case of Italy, statistics are readily accessible for the 20 administrative regions, the aggregation we have chosen for this study. We also include a consolidated 5 region aggregation, which shows the more general spatial demographic patterns. Measures for both regional systems have been included where relevant so that a comparison of the two aggregations and an evaluation of what is lost by aggregating regions can be made.

The report uses 1978 data from the Central Statistical Office of Italy – the most recent age-specific migration data available, tabulated from registered data. (Registration of a new residence is required by law in Italy.) Statistics for 5-year age groups on births (by age of mother) and deaths were obtained from ISTAT tables, which are published yearly. Appendix A gives the observed 1978 data for both the 5 and the 20 region aggregations.

3.1 The Multiregional Life Table

A single-region life table applies age-specific mortality rates that prevailed at one moment in time to a population of a given region and ignores migration. A multiregional life table extends this closed, independent demographic tabulation to an open one, by including the interactions produced by internal migrations between the several regions of the national population system. It applies the regional schedules of mortality and migration to cohorts of 100000 people, say, born at the same moment in time in each of the regions and exposed to the regimes of age-specific regional rates of dying and migrating. (Appendix B gives these observed rates for the 5 regions of Italy for 1978.)

LIFE HISTORY OF THE REGIONAL BIRTH COHORTS

Age-specific death and out-migration rates are used to compute such multiregional life table statistics as the probability of surviving to exact age x, the number of years expected to be lived beyond age x, and age-specific survivorship proportions.

Table 10 gives the probabilities of the 1978 birth cohort surviving in its region of birth to ages 20, 35, and 65 for each of the 5 and 20 regions of Italy, taking into account the effects of regional patterns of migration and death. Another way of viewing these probabilities is to consider them as retention propensities, i.e., the probability that a region will retain its birth cohort at different ages. For example, the first column of Table 10 shows that in 1978 some regions are expected to lose a considerable portion of their birth cohort by age 20, therefore showing low retention propensities. In the 5 region case, the movement is clearly from the less developed south to the industrialized north, indicating out-migration in search of better job opportunities.

The 20 region aggregation shows that within the developed areas of the north, Piemonte's population had the lowest retention propensity to age 20 (with the exception of Valle d'Aosta, on which no particular emphasis is put in this report because of its small population size). The central regions all have high probabilities of individuals surviving in their region of birth to this age, whereas the southern regions have low ones; Molise, Basilicata, and Calabria lost more than 20 percent of their original cohort because of migration flows mainly to the northwestern part of the country.

Looking at the southern populations at age 35, we find that one-third of those who were expected to remain until the age of 20 in their region of birth subsequently moved elsewhere – particularly from Basilicata, which lost more than 50 percent of its original birth cohort by age 35. The situation is quite different in the north, however. Lombardia, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna, Toscana, Umbria, Marche, and Lazio show high retention propensities, the majority of the original birth cohort residing in its region of birth at age 65. (Expected numbers of survivors at exact

age x for the 5 regions are given in Appendix C.1.) With the exception of Friuli-Venezia Giulia and Lazio, this behavior is a result of favorable economic conditions, rich agricultural facilities, and labor-intensive, middle-sized industries that are characteristic of these regions. The relatively high retention propensities for Friuli-Venezia Giulia are a consequence of the large number of transfer payments and incentives to stay provided by the central government in recent years. Because Lazio has public administration as its main industry, a large portion of its labor force is employed in government offices – an occupational structure that makes the active population particularly insensitive to changes in labor market conditions.

The differences in out-migration between the two northern industrialized Italian regions – Piemonte, with its highly mobile population, and Lombardia, characterized by lower population mobility – can be explained by looking at their industrial structures: large-sized plants, which are sensitive to technical change and international trade cycles, and middle-sized plants, which maintain

TABLE 10 Probabilities of surviving in region of birth to ages 20, 35, and 65: 5 and 20 regions, 1978.

	Probability of surviving to age:		
Region of birth	20	35	65
Northwest	0.866	0.735	0.532
Piemonte	0.802	0.610	0.416
Valle d'Aosta	0.779	0.562	0.339
Lombardia	0.866	0.723	0.503
Liguria	0.818	0.632	0.438
Northeast	0.925	0.831	0.637
Trentino-A.A.	0.909	0.764	0.542
Veneto	0.919	0.810	0.607
Friuli-V.G.	0.880	0.719	0.503
Emilia-R.	0.895	0.772	0.593
Central	0.913	0.802	0.628
Toscana	0.894	0.770	0.595
Umbria	0.880	0.724	0.552
Marche	0.902	0.768	0.596
Lazio	0.888	0.735	0.541
South	0.862	0.678	0.514
Abruzzi	0.854	0.655	0.484
Molise	0.797	0.529	0.366
Campania	0.865	0.673	0.485
Puglia	0.855	0.661	0.493
Basilicata	0.766	0.473	0.313
Calabria	0.786	0.520	0.370
Islands	0.858	0.675	0.513
Sicilia	0.852	0.668	0.507
Sardegna	0.865	0.671	0.497

SOURCE: Appendix C.1 and derived from Appendix A.

relatively stable employment patterns even in crisis periods. Figure 9 sets out the age-specific profile of internal mobility in Italy in 1978, a profile that is similar to those of many other countries of the world (Rogers *et al.* 1977, Rogers 1981), and Figure 10 illustrates the main net migration flows.

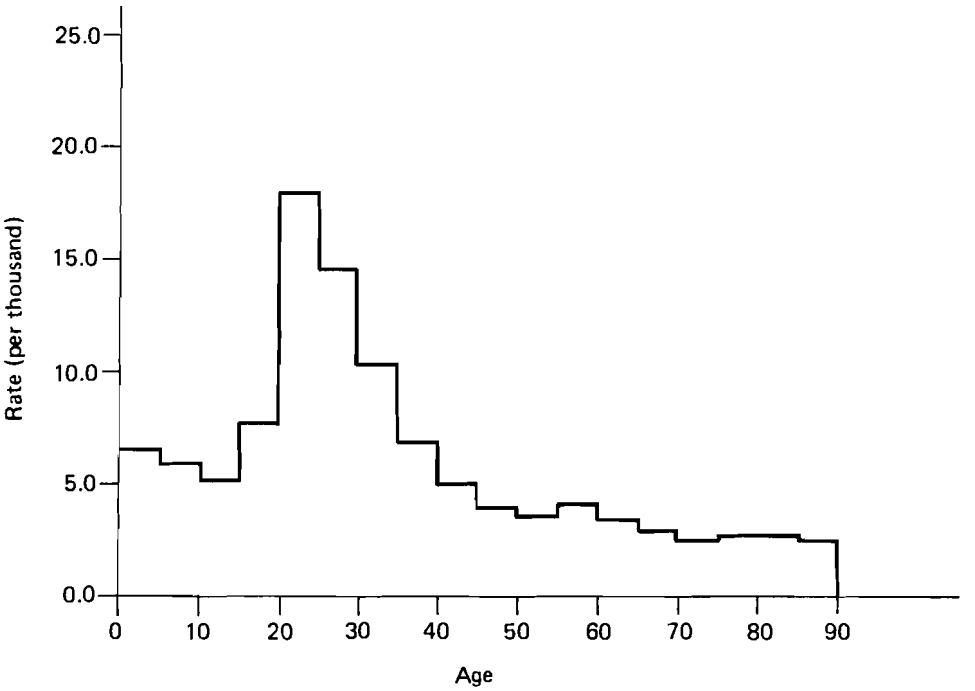


FIGURE 9 Internal mobility rate (per thousand): Italy, 1978.

EXPECTATION OF LIFE

The expectation of life at birth for each region is shown in Table 11 for the multiregional model (which includes the effects of migration) and the single-region model (which is closed to migration). The multiregional life table computation assumes that the individual takes on the mortality rate of the region in which he or she currently lives and does not retain the rate from the region of birth or the region of previous residence. This assumption does not affect substantially our results because the differences in mortality among the Italian regions are not large. There is a difference, however, between the single-region and multiregional analysis. Those regions with higher single-region expectations of life have lower multiregional values; the introduction of migration has the effect of reducing regional mortality differentials.

The first column of Table 11 gives the number of years expected to be lived in the region of birth for an individual exposed to the mortality and migration rates of 1978; the second column presents the average number of years spent outside the region of birth by such an individual. These values show that

people born in southern regions spend a larger proportion of their lives outside of their place of birth than do those born elsewhere in Italy. For example, more than 40 percent of the total lifetime of a person born in Basilicata is spent outside of Basilicata. Note that the amount of time spent out of the region of birth is no longer highest for the Islands' population as it was in earlier years.

3.2 Multiregional Fertility Analysis

The net reproduction rate (NRR) in a single-region analysis measures the average number of daughters born to a woman who has passed through her childbearing

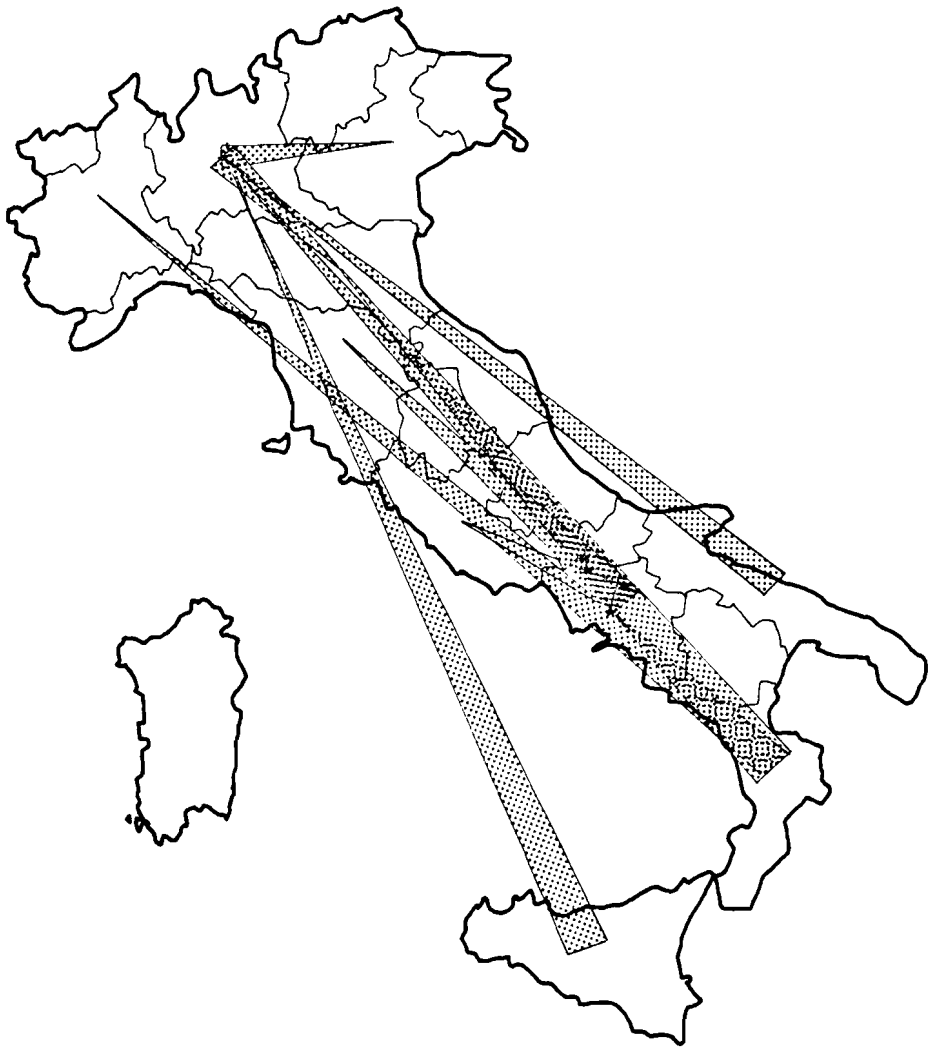


FIGURE 10 Main net migration flows: Italy, 1978.

TABLE 11 Single-region and multiregional values (years) of life expectancy at birth: 5 and 20 regions, 1978.

Region of birth	Multiregional			Single-region
	Years spent in place of birth	Years spent outside place of birth	Total	
Northwest	57.80	15.98	73.78	73.46
Piemonte	50.05	23.80	73.85	73.58
Valle d'Aosta	45.97	27.22	73.19	72.14
Lombardia	56.48	17.10	73.58	73.12
Liguria	51.61	22.75	74.36	74.48
Northeast	64.67	9.28	73.95	73.87
Trentino-A.A.	59.53	14.18	73.71	73.49
Veneto	62.79	10.70	73.49	73.37
Friuli-V.G.	56.83	16.53	73.36	73.01
Emilia-R.	61.46	13.10	74.56	74.70
Central	63.67	11.34	75.01	75.27
Toscana	61.62	13.52	75.14	75.41
Umbria	58.55	16.83	75.38	75.58
Marche	61.50	13.67	75.17	75.40
Lazio	58.61	16.21	74.82	75.02
South	55.93	17.97	73.90	73.99
Abruzzi	54.30	20.68	74.98	75.33
Molise	46.46	28.52	74.98	75.42
Campania	54.65	18.51	73.16	72.78
Puglia	54.84	19.30	74.14	74.47
Basilicata	43.06	31.38	74.44	74.91
Calabria	46.53	27.74	74.27	74.90
Islands	55.87	18.42	74.29	74.55
Sicilia	55.36	18.90	74.26	74.53
Sardegna	55.71	18.69	74.40	74.64
Italy			74.24	74.07

SOURCE: Appendix C.2 and derived from Appendix A.

years conforming to the age-specific mortality and fertility rates of a given year. The NRR in a multiregional analysis measures the same rate but in addition takes into account the impacts of migration, assuming that the woman adopts the fertility and mortality schedules of the region to which she has moved.

The net reproduction rates for the 5 Italian regions are presented in Table (12 part a). The diagonal values show the NRRs for women who reproduce in their region of birth; the totals give the NRRs for all women according to their region of birth. This table confirms the higher fertility level of southern Italy that has evolved over time. It is interesting to note, however, that the NRR for the Islands is lower than that of the South and that the overall fertility level in 1978 is close to replacement level, a change from earlier years of high birth rates.

The results for the 20 region aggregation (not given here) indicate that net reproduction rates are below replacement level in all regions, with the exception of Campania (1.10), Puglia (1.09) and Sicilia (1.02). The lowest NRR is in Liguria (0.68), followed by Emilia-Romagna (0.71), Friuli-Venezia Giulia (0.74), and Toscana (0.75).

The influence of migration on reproduction rates is more clearly shown in part b of Table 12. These allocations measure the distribution of birthplaces of daughters born to a native of each region, the diagonal again representing the births that occur in the mother's region of birth. All values are within a close range of each other in this 5 region aggregation, with the Northwest having the lowest percentage (77.4) and the Northeast having the highest (88.0). These rather high, similar values indicate that many Italian women reproduce in their native region. When looking at the proportions of daughters born in regions other than the region of birth of the mother, however, the impact of migration on population distribution in Italy becomes clearer. For example, the percent of daughters born in the Northwest to natives of the South is 7.8 and to natives of the Islands is 8.6, but for mothers born in the Northeast and Central regions, these percentages are much lower: 3.8 and 3.4, respectively.

TABLE 12 Spatial fertility expectancies (net reproductive rate matrix): 5 regions, 1978.

Region of birth of daughter	Region of birth of mother				
	Northwest	Northeast	Central	South	Islands
a. Net reproduction rate					
Northwest	0.612	0.029	0.028	0.082	0.088
Northeast	0.028	0.664	0.018	0.027	0.024
Central	0.028	0.020	0.701	0.045	0.035
South	0.080	0.029	0.053	0.880	0.031
Islands	0.044	0.014	0.019	0.014	0.837
Multiregional *NRR*	0.791	0.755	0.820	1.048	1.013
Single-region *NRR*	0.747	0.738	0.801	1.133	1.079
b. Net reproduction allocation (percent)					
Northwest	77.4	3.8	3.4	7.8	8.6
Northeast	3.5	88.0	2.2	2.6	2.3
Central	3.5	2.7	85.5	4.3	3.4
South	10.1	3.8	6.4	84.0	3.0
Islands	5.6	1.8	2.3	1.4	82.5
Total	100.0	100.0	100.0	100.0	100.0

In the 20 region analysis the lowest percentage appears in the South (rather than the Northwest) in Basilicata (65.9), but the higher values of Campania (84.1), Puglia (82.2), and Abruzzi (77.4) bring the 5 region percentage up to its overall 84.0 percent. In accordance with the 5 region aggregation, Veneto (of the Northeast) has the highest percentage (88.1) of mothers reproducing themselves in their region of birth. Nor surprisingly, mothers born in Calabria and Basilicata produce more daughters outside of their native region than do mothers born in any of the remaining 18 regions. Calabrian-born women produce 5.5 percent of their daughters in Piemonte and 7.3 percent in Lombardia; for women born in Basilicata, these percentages are 5.1 and 6.4, respectively, and 6.2 percent for the only other southern region, Puglia.

The influence of migration is also discernible when the single-region and multiregional NRRs are compared (part a of Table 12). Recall that the single-region rates do not take migration into account; therefore these values represent a closed system. Comparing them with those of the multiregional analysis, which does include mobility, shows NRR increases in the first three northern regions and decreases in the two southern regions, implying that migration has occurred from the south to the north.

3.3 Multiregional Mobility Analysis

A first measure of the level of mobility within a multiregional system is provided in Figure 11, which shows the fraction of total lifetimes that individuals are expected to spend in their regions of birth; this index is inversely related to the "propensity to move". It reveals, for instance, that on the average, mobility is higher for those born in southern Italy than for those born elsewhere in the country; however, natives of three northern regions (Piemonte, Valle d'Aosta, and Liguria) also show a similar propensity to move.

An alternative approach for measuring the level of migration in a multiregional system is one that treats migration as an event analogous to birth. According to this view, the same procedure that is used to compute the matrix of net reproduction rates can also be applied to generate a matrix of net migraproduction rates, each element of which represents the number of moves that an individual born in one region is expected to make out of a particular region of residence. In the same way that the multiregional net reproduction rate describes regional fertility patterns, the net migraproduction rate depicts migration patterns across regions.

The net migraproduction rates for the 5 region aggregation of Italy are given in Table 13. Column totals of part a give the number of migrations that a person born in a given region can be expected to make during his or her lifetime. In general, the national level of interregional mobility appears to be particularly low in 1978 compared with the earlier years discussed in section 2, but spatial differentials still exist. For example, the number of moves a southern-born individual is expected to make is greater than that of a northern-born

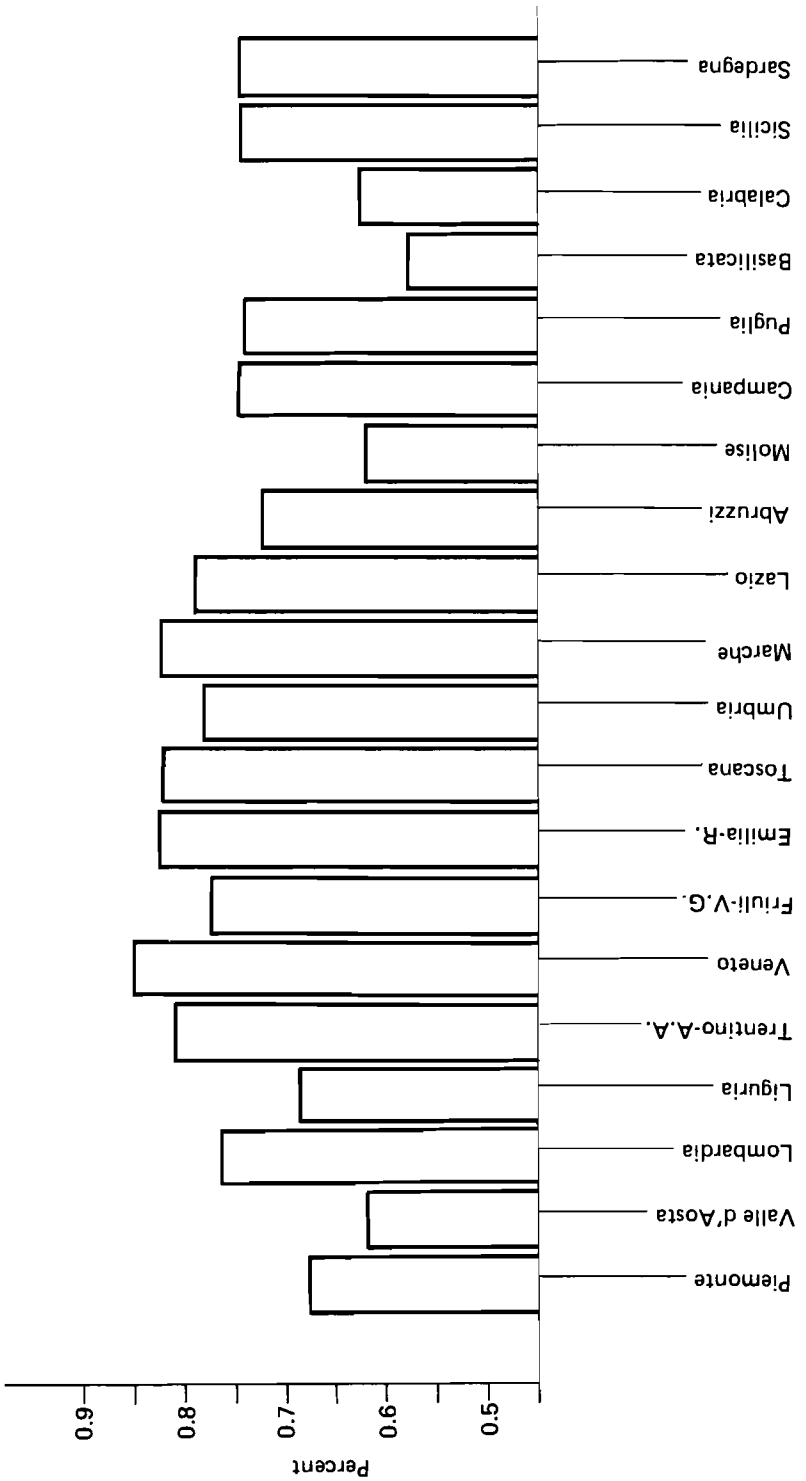


FIGURE 11 Fraction of total lifetime spent in region of birth: 20 regions, 1978.

individual, and the number of expected moves of a Northwest-born person exceeds those of Northeast and Central natives.

When considering a 20 region aggregation, the number of migrations will, of course, be higher than for a 5 region aggregation. Table 14 compares these totals. Note that although the net migraproduction rates for the South and Islands are almost identical, the individual rates for the six regions within the South and the two islands are quite different. Basilicata, Molise, and Calabria have the highest frequencies of migration (0.845, 0.760, and 0.751, respectively) in Italy. The next highest rates occur in the Northwest regions of Valle d'Aosta (0.747), Piemonte (0.661), and Liguria (0.631). The following rates are again in the South (Abruzzi, 0.563; Puglia, 0.538; Campania, 0.514), and only at this level do we find the rates for the two islands: Sicilia (0.523) and Sardegna (0.508). There is considerably more migration, therefore, between the six regions of the South than there is between the two southern regions and the rest of Italy. Clearly the size of the regions chosen for a migration analysis influences the results achieved.

The net migraproduction allocations (Table 13, part b) measure the percentage distribution of out-migrations that take place within Italy. The 5 region aggregation shows that the Northwest has high percentages of out-migrations

TABLE 13 Spatial migration expectancies (net migraproduction rate matrix): 5 regions, 1978.

Region of out-migration	Region of birth				
	Northwest	Northeast	Central	South	Islands
a. Net migraproduction rate					
Northwest	0.357	0.017	0.017	0.044	0.047
Northeast	0.009	0.206	0.006	0.009	0.008
Central	0.011	0.008	0.256	0.017	0.014
South	0.033	0.012	0.022	0.389	0.013
Islands	0.019	0.006	0.008	0.006	0.385
Multiregional *NMR*	0.429	0.250	0.310	0.465	0.467
Single-region *NMR*	0.436	0.231	0.295	0.491	0.487
b. Net migraproduction allocation (percent)					
Northwest	83.2	6.9	5.4	9.4	10.1
Northeast	2.2	82.7	2.0	1.9	1.7
Central	2.6	3.3	82.7	3.8	2.9
South	7.6	4.8	7.2	83.6	2.8
Islands	4.4	2.4	2.7	1.4	82.5
Total	100.0	100.0	100.0	100.0	100.0

TABLE 14 Total net migraproduction rates: 5 and 20 regions, 1978.

Region	Net migra-production rate	Region	Net migra-production rate
Northwest	0.429	South	0.465
Piemonte	0.661	Abruzzi	0.563
Valle d'Aosta	0.747	Molise	0.760
Lombardia	0.491	Campania	0.514
Liguria	0.631	Puglia	0.538
		Basilicata	0.845
Northeast	0.250	Calabria	0.751
Trentino	0.390		
Veneto	0.309	Islands	0.467
Friuli-Venezia Giulia	0.441	Sicilia	0.523
Emilia-Romagna	0.364	Sardenia	0.508
Central	0.310		
Toscana	0.379		
Umbria	0.453		
Marche	0.377		
Lazio	0.476		

for individuals born in the four other regions of Italy, but the highest percentages are for those born in the South (9.4) and Islands (10.1). Northwest-born individuals, on the other hand, also show moderately high percentages of outmigrations from the South (7.6) and Islands (4.4).

The more detailed 20 region allocations indicate that the highest outmigration percentages occur in Piemonte and Lombardia: the highest Piemonte percentages being for those born in the southern regions of Calabria (6.1), Sicilia (5.8), and Basilicata (4.9), followed by the northern region of Liguria (4.8); the highest Lombardia percentages being for those born in Sicilia (5.9), Calabria (5.7), and Puglia (5.4). Lazio also shows high percentages of outmigrations, a result of the search for jobs in the capital city of Rome.

3.4 Multiregional Population Projections

One of the most useful features of a multiregional analysis lies in its ability to generate consistent projections for a system of regional populations. Regional fertility and mortality rates, together with interregional migration rates may be carried forward over time to describe the future impacts of current demographic trends. Note that the results are not a forecast of the future since they do not take the effects of possible future events into consideration; they merely reflect the demographic behavior that exists in the country at a particular moment in time.

Appendix D gives age-specific multiregional projections to the year 2028 and beyond, to stability, for the 5 regions of Italy, based on 1978 data. A summary of several characteristics obtained from these projections is given in Table 15. It shows, for example, that by 1998 the populations of the Northwest are projected to decrease (if fertility, mortality, and migration rates were to remain constant at 1978 levels), whereas all other populations are expected to increase – some more than others. A decrease is shown for both the Northwest's and Northeast's regional shares as well as for all regional growth rates. The mean ages across the country, however, are expected to increase.

The same characteristics are given for the 20 region aggregation in Table 16. When a 20 region analysis is consolidated into a 5 region study, aggregation errors occur. For the 20-year period projection to 1998, however, these differences are not substantial because of the relatively low degree of regional variations within each of the 5 regions in 1978. A comparison of Tables 15 and 16, therefore, shows similar results. Piemonte, Valle d'Aosta, and Liguria are expected to lose populations (while Lombardia shows growth), whereas all other regions with the exception of Friuli-Venezia Giulia are expected to gain. The regional shares decrease for all regions other than Lazio in the Central region and Campania, Puglia, Calabria, Sicilia, and Sardegna in the South and Islands, and all growth rates decrease. Finally, as in the 5 region case, mean ages are expected to go up throughout the country.

The 1978 and stable age structures of the population for three selected regions and Italy as a whole are given in Figure 12. As can be seen, the age structures at stability as compared with 1978 are projected to have lower percentages of populations under 30 years of age in all cases. The reverse is expected for ages over 50; there will be higher percentages of older people when the selected populations reach stability than there were in 1978.

A comparison of our multiregional projections with the official population forecasts of the Central Statistical Office is also of interest. (See ISTAT 1982 for the forecasts and details of the procedure used.) ISTAT's estimations were performed on the basis of four assumptions:

(A) low natality and non-zero migration rates
(B) high natality and non-zero migration rates
(C) low natality and zero migration rates
(D) high natality and zero migration rates

and are for four regions: (1) Italy as a whole, (2) Northwest and Northeast combined, (3) Central, and (4) South and Islands combined. The projection process begins in 1972 and until 1978 observed values of births, deaths, and net migrations are used.

Figure 13 illustrates this comparison between the ISTAT single-region forecasts and the results obtained from our multiregional projections. In two cases, 3 and 4, our projections lie close to the ISTAT forecasts corresponding to assumption B (high natality and non-zero migration rates). In the northern regions,

TABLE 15 Summary indicators of multiregional population projection: 5 regions, 1978 to stability.

Indicator	Region					
	Northwest	Northeast	Central	South	Islands	Italy
Total population size						
1978	15 424 582	10 394 756	10 790 837	13 471 822	6 518 288	56 600 288
1998	15 300 043	10 547 919	11 353 042	15 033 349	7 190 572	59 424 924
Regional share						
1978	27.2518	18.3652	19.0650	23.8017	11.5164	100.0000
1998	25.7468	17.7500	19.1048	25.2981	12.1003	100.0000
Stability	21.5133	11.1975	16.6045	36.3523	14.3325	100.0000
Growth rate						
1978–1983	0.000	0.002	0.004	0.006	0.006	0.003
1998–2003	–0.002	–0.002	0.000	0.004	0.003	0.000
Stability	–0.002	–0.002	–0.002	–0.002	–0.002	–0.002
Mean age						
1978	37.14	37.05	36.93	32.66	33.48	35.59
1998	39.95	40.24	40.10	34.87	35.65	38.22
Stability	41.85	43.08	42.77	37.62	38.59	40.13

SOURCE: Appendix D.

TABLE 16 Summary indicators of multiregional population projection: 20 regions, 1978 to stability.

Indicator	Region									
	Piemonte	Valle d' Aosta	Lombardia	Liguria	Trentino-A.A.	Veneto	Friuli-V.G.	Emilia-R.	Toscana	Umbria
Total population size										
1978	4 540 686	144 280	8 910 389	1 859 227	872 219	4 320 886	1 245 193	3 956 458	3 587 301	802 448
1998	4 410 062	116 166	9 070 219	1 697 272	895 451	4 523 558	1 186 474	3 949 988	3 590 126	816 683
Regional share										
1978	8.022	0.202	15.743	3.285	1.541	7.634	2.200	6.990	6.338	1.418
1998	7.419	0.195	15.259	2.855	1.506	7.610	1.996	6.645	6.040	1.374
Stability	6.198	0.147	12.120	1.623	0.711	3.769	1.131	4.633	4.517	0.843
Growth rate										
1978 1983	-0.001	0.002	0.001	−0.004	0.002	0.003	-0.002	0.001	0.001	0.002
1998 2003	-0.003	-0.001	−0.001	−0.006	-0.001	−0.000	−0.004	-0.003	−0.002	−0.002
Stability	-0.001	0.001	−0.001	-0.001	−0.001	-0.001	−0.001	−0.001	-0.001	−0.001
Mean age										
1978	38.15	37.03	35.91	40.52	34.80	35.23	39.16	38.87	39.19	38.50
1998	40.47	39.36	38.96	43.84	37.78	38.69	41.53	42.15	41.95	41.79
Stability	41.64	40.76	40.97	45.24	40.86	42.29	43.25	43.84	43.65	43.90

TABLE 16 *Continued.*

Indicator	Region										
	Marche	Lazio	Abruzzi	Molise	Campania	Puglia	Basilicata	Calabria	Sicilia	Sardegna	Italy
Total population size											
1978	1 403 730	4 997 358	1 227 890	331 833	5 378 777	3 856 352	619 057	2 057 913	4 936 180	1 582 108	56 600 176
1998	1 455 615	5 480 004	1 263 007	334 792	6 179 972	4 471 780	625 218	2 181 742	5 420 315	1 772 115	59 440 416
Regional share											
1978	2.480	8.829	2.169	0.586	9.503	6.813	1.094	3.636	8.721	2.795	100.00
1998	2.449	9.219	2.125	0.563	10.397	7.523	1.052	3.670	9.119	2.981	100.00
Stability	1.571	8.551	1.489	0.579	22.404	14.197	0.982	2.901	8.992	2.644	100.00
Growth rate											
1978 1983	0.003	0.006	0.002	0.001	0.007	0.008	0.008	0.004	0.005	0.006	0.003
1998 2003	0.001	0.002	-0.001	−0.001	0.005	0.005	−0.001	0.001	0.003	0.004	0.001
Stability	0.001	0.001	-0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	-0.001
Mean age											
1978	37.73	34.83	36.56	36.67	31.64	32.15	33.68	32.98	33.80	32.46	35.59
1998	40.64	38.46	39.23	38.91	33.65	34.37	36.16	35.69	35.76	35.29	38.21
Stability	42.74	41.50	41.81	41.51	36.05	37.05	38.65	38.90	38.31	38.92	39.49

SOURCE: Derived from Appendix A.

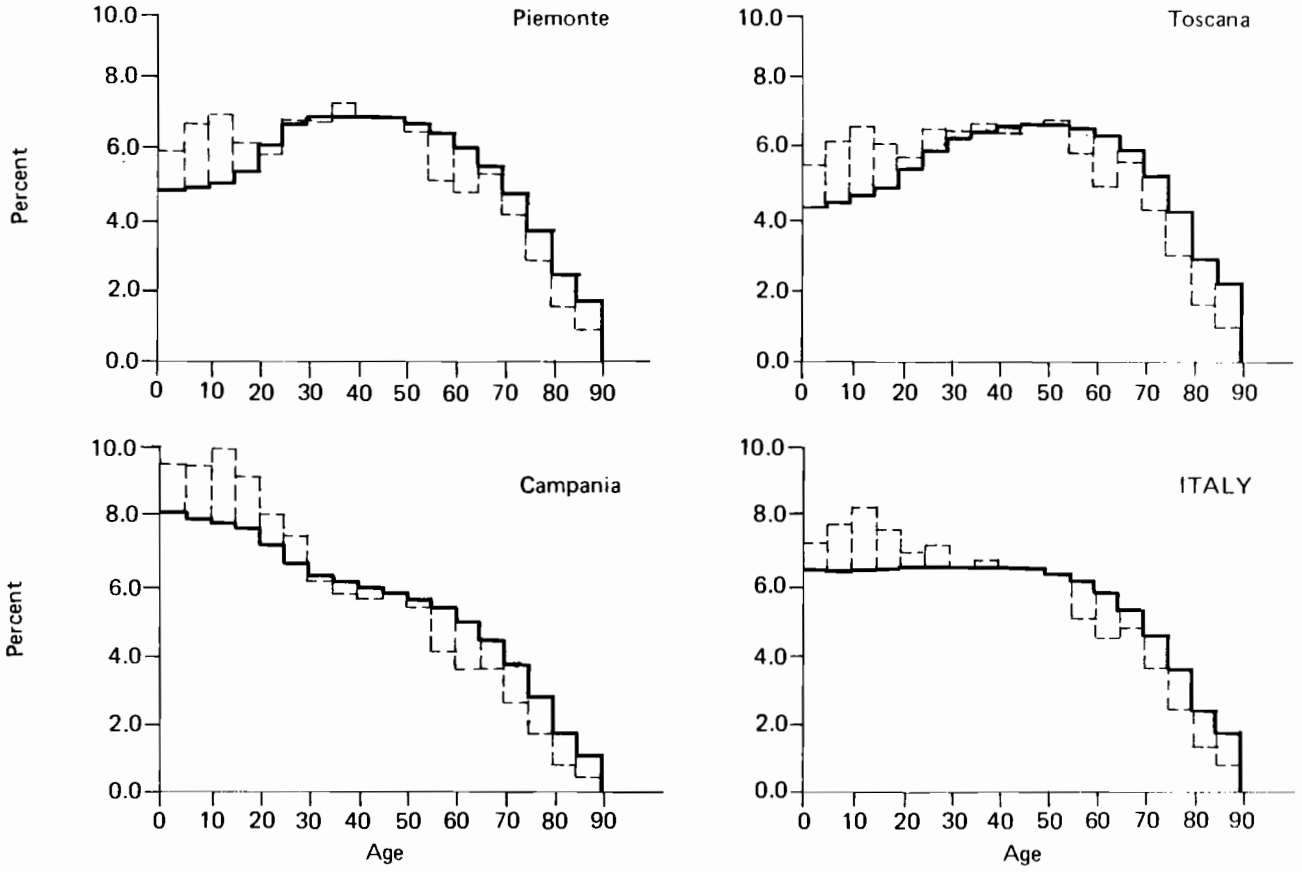


FIGURE 12 Comparison of age structures of the population at the 1978 base year of projection (- - -) and at stability (——): Piemonte, Toscana, Campania, and Italy as a whole.

however, the population is overestimated by our projection, mainly because of the impact of the constant migration assumption; ISTAT assumes that the absolute net migration flows will decline in all the regions. For Italy as a whole, our projections are close to those produced on the basis of assumption D (high natality and zero migration). This is because ISTAT's assumption of high natality supposes increasing net reproduction rates in the northern and central regions and declining rates in the southern ones, thus implying a trend toward more uniform reproductive behavior among regions, while our projections hold constant the 1978 fertility rates for each region.

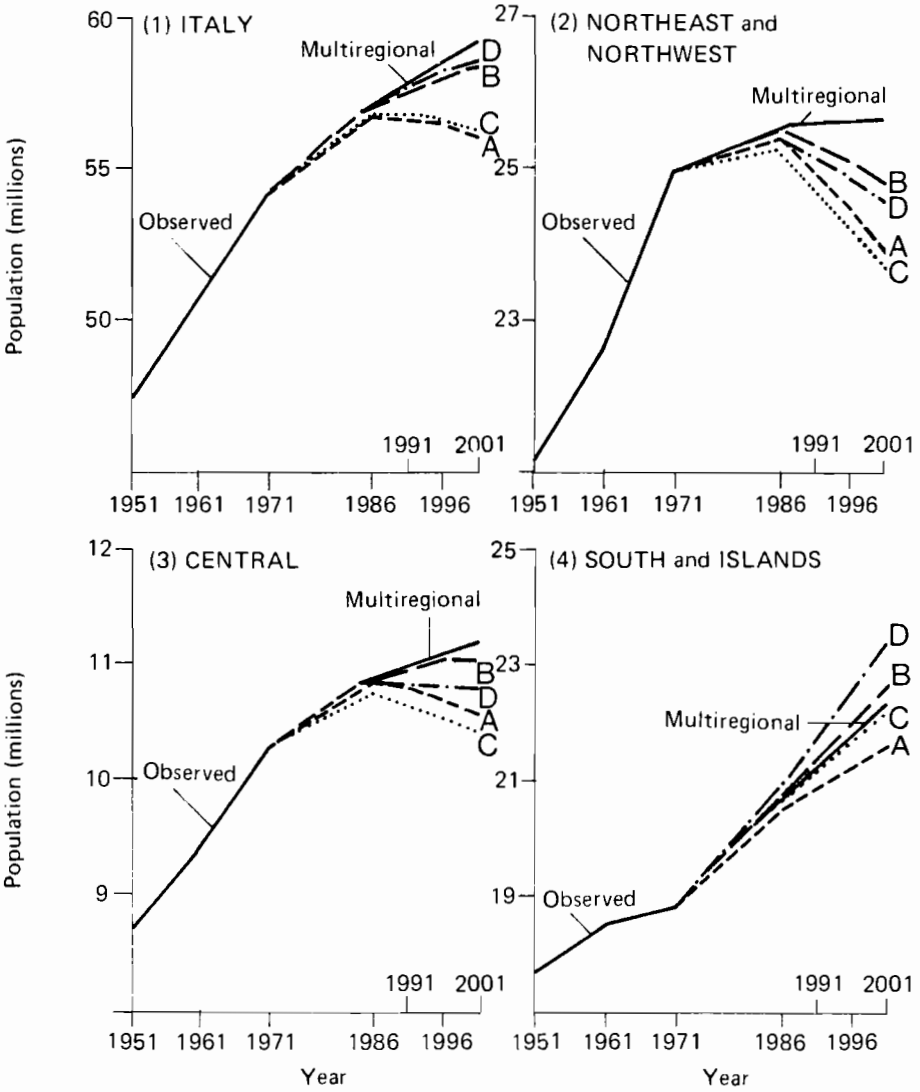


FIGURE 13 Comparison between ISTAT's single-region forecastings and the multiregional projections. Sources: ISTAT 1982 and Appendix D.

4 POPULATION POLICIES

Population policies in Italy have rarely been of great concern to the government, and those policies that have existed have varied with the circumstances. The one exception to this took place between the two world wars during the Fascist period at which time the government imposed strong incentives to build up Italian manpower (Bacci 1974) by encouraging nuptiality, fertility, and family units and by discouraging emigration.

Nuptiality was rewarded by allowances given to men under 26 years of age who were married, and low interest rates, which decreased with the birth of each child and were cancelled if a fourth child was born, were available for young couples who took out loans. People who were married were chosen over those who were not for government employment. At the same time, all unmarried males between 26 and 65 were subject to a special tax. Fertility was encouraged by family allowances, which were given according to the number of children with bonuses for each birth. Women who produced many children won honors, and all women were discouraged from working outside the home.

The curtailment of emigration was also attempted. Because of high unemployment, many people chose to move out of Italy; the government proposed Italian colonies, therefore, as alternatives to prospective emigrants. Migration from the rural areas was restricted by laws against moving into *comuni* having more than 25000 inhabitants unless proof of permanent employment was produced.

Because of the particularly unfavorable economic situation that existed during these war years, the demographic policies set out by the government failed to have much of an effect (see Figures 2 and 4). After World War II, Italy was faced with extensive destruction and high rates of unemployment. Emigration increased and the south continued its high level of natural increase. Although the Italian government adopted a number of measures aimed at alleviating internal disparities in income, employment, and rates of economic growth, no formal population policies have since been established. The measures that were established have indirectly affected population redistribution, as can be seen by the public interventions initiated to improve the less developed areas of the country. These interventions can be categorized into three phases.

The first two phases, which occurred in the 1950s and 1960s, faced the main problem of a huge social and economic gap that existed between the northern and southern parts of the country. The first phase began with the creation of a government agency, the Cassa per il Mezzogiorno, which was designed to develop a consistent program of public investment in the south. During this phase, the government did not intervene in the production sectors but was only concerned with investment in the construction of public facilities (such as schools and hospitals) and productive infrastructures (such as roads and ports). This type of intervention, however, was insufficient and did not appreciably reduce the north–south gap.

In the second phase, lasting from the 1960s to the early 1970s, a policy of direct industrialization of the southern regions was implemented; for example, a steel mill was built in Puglia, petrochemical plants were constructed in Sicilia, and an automobile factory opened in Campania. Despite some success, this policy also failed, on the whole, to achieve its goals. Although per capita income in the south increased in those years at a slightly higher rate than the national average, it remained at a level far below that of the north. The government's direct investments led to the construction of some of the largest industrial complexes in Europe. Yet, because of their nature and size, these complexes were more connected with international markets than with local ones and were largely independent of the preexisting economic framework of the Mezzogiorno. All this prevented the stimulation of local economies.

From a different point of view, the policy of encouraging private investment aimed at lowering the capital cost for new plants, led to the installation of capital-intensive and labor-saving technologies, which prevented the creation of the employment opportunities needed to stop out-migration from the south.

In recent years, the policy of direct industrialization has been thoroughly revised, and an integrated approach to the problems of the less developed areas has been adopted. Public intervention is still based on investments in infrastructure and on financial aid to private enterprises in the southern regions, but there is now an integrated use of all available instruments and the areas of intervention have been redefined.

The new development policy seeks to reduce disparities among regions. Thus in the last few years, regional authorities have been given the power to design integrated development plans, which are required by law, in order to obtain appropriations of national funds. Also in recent years, Italian industry has received considerable financial aid from the national government in an effort to maintain high employment levels; direct subsidies have been paid to reduce unemployment and to lower labor market tensions. The overall effect of these interventions has been a dramatic reduction of labor mobility.

5 CONCLUSION

The historical review of Italy's demographic evolution presented earlier in this report emphasized the extensive migration that took place over the years from the south to the north of the country, largely as a result of spatial economic and social disparities. Because migration is such an influencing factor on population dynamics, it is important to analyze these flows as precisely and consistently as possible. This can best be done by considering all regional populations as a network, interlinked by migration. The multiregional approach has allowed us to present such a picture of Italy's 1978 population and to project this population into the future.

We have seen from the net reproduction rates that all 20 administrative regions of Italy are below or just at replacement level and that fertility is much higher in the south than in the north. Moreover, the analysis revealed that the southern part of the country is able to sustain its population because of natural

increase and that, in general, each region receives the greatest contribution to its net reproduction rate from parents born in the same region.

The net migraproduction rates have shown that mobility is higher for people born in the south and that only three regions in the north (Piemonte, Valle d'Aosta, and Liguria) exhibit movement propensities among their natives comparable with those of southern regions.

The decline in migration rates, which has taken place over the last decade, has largely been a result of governmental policies aimed at equalizing economic growth throughout the country. It is hoped that with the aid of more sophisticated tools for analyzing spatial population dynamics, such as those presented in this report, formal demographic policies will be implemented that will contribute to the reduction of regional disparities within Italy.

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APPENDIXES

Appendix A

OBSERVED POPULATION, NUMBERS OF BIRTHS, DEATHS, AND MIGRANTS, DISAGGREGATED BY AGE AND REGION FOR THE 5 AND 20 REGIONS: 1978

APPENDIX A

Observed population characteristics: 5 regions.

region n-west

age	population	births	deaths	migration from n-west	n-east	n-west to central	south	islands
0	976380.	0.	2931.	0.	1408.	1206.	2958.	1742.
5	1105671.	0.	296.	0.	1320.	1357.	2708.	1711.
10	1175095.	11.	352.	0.	1263.	1124.	2397.	1698.
15	1033267.	12922.	687.	0.	1034.	794.	2709.	1586.
20	953676.	43126.	740.	0.	2568.	2001.	5283.	2851.
25	1081716.	55736.	749.	0.	2439.	2324.	5136.	2761.
30	1076986.	52390.	905.	0.	2088.	2060.	3886.	2116.
35	1169426.	12801.	1518.	0.	1794.	1595.	2418.	1414.
40	1092975.	3154.	2569.	0.	1371.	1046.	1559.	909.
45	1081437.	234.	4495.	0.	1050.	742.	1313.	732.
50	1014200.	14.	7303.	0.	976.	704.	1253.	668.
55	802415.	0.	8972.	0.	1044.	645.	1219.	681.
60	734352.	0.	11584.	0.	793.	482.	816.	502.
65	793423.	0.	20425.	0.	573.	345.	726.	357.
70	601994.	0.	24902.	0.	386.	221.	385.	239.
75	402262.	0.	27073.	0.	265.	167.	241.	143.
80	212133.	0.	24697.	0.	130.	82.	92.	60.
85	117174.	0.	24098.	0.	86.	55.	32.	23.
total	15424582.	160388.	164296.	0.	20588.	16950.	35131.	20193.

region n-east

age	population	births	deaths	migration from n-west	n-east	n-east to central	south	islands
0	651686.	0.	1713.	772.	0.	605.	577.	304.
5	748364.	0.	256.	746.	0.	549.	514.	278.
10	809930.	5.	258.	732.	0.	515.	493.	306.
15	745683.	10320.	587.	858.	0.	391.	589.	283.
20	686047.	29727.	605.	2139.	0.	1163.	1315.	581.
25	731272.	35846.	603.	1932.	0.	1299.	1160.	532.
30	707908.	21010.	690.	1391.	0.	1065.	783.	421.
35	730900.	8932.	1060.	1019.	0.	800.	537.	269.
40	676078.	2260.	1638.	743.	0.	504.	348.	220.
45	679042.	163.	2838.	590.	0.	405.	288.	168.
50	700531.	6.	4760.	517.	0.	340.	209.	120.
55	572156.	0.	6161.	442.	0.	269.	224.	91.
60	502122.	0.	7707.	333.	0.	198.	112.	64.
65	546672.	0.	13147.	350.	0.	180.	149.	51.
70	404289.	0.	16012.	272.	0.	107.	58.	39.
75	271491.	0.	17271.	203.	0.	111.	57.	23.
80	147419.	0.	15864.	149.	0.	72.	27.	8.
85	83166.	0.	16169.	88.	0.	33.	11.	15.
total	10394756.	108269.	107339.	13276.	0.	8606.	7451.	3773.

region central

age	population	births	deaths	migration from central to n-west	n-east	central	south	islands
0	703969.	0.	1968.	727.	506.	0.	1214.	493.
5	775230.	0.	215.	732.	482.	0.	1130.	398.
10	829226.	7.	230.	681.	447.	0.	1106.	436.
15	762994.	10172.	453.	807.	490.	0.	987.	398.
20	711691.	34358.	443.	2180.	1488.	0.	2596.	935.
25	756077.	41456.	466.	1965.	1283.	0.	2612.	902.
30	719382.	23383.	572.	1206.	903.	0.	1735.	603.
35	750985.	8946.	855.	927.	631.	0.	1242.	457.
40	730609.	2267.	1319.	584.	440.	0.	910.	276.
45	735045.	171.	2294.	488.	352.	0.	784.	290.
50	734938.	8.	4004.	385.	296.	0.	699.	211.
55	606870.	0.	5474.	351.	303.	0.	657.	209.
60	517634.	0.	6730.	254.	252.	0.	417.	165.
65	545464.	0.	11836.	298.	205.	0.	417.	135.
70	396910.	0.	14479.	156.	127.	0.	248.	102.
75	271523.	0.	16072.	129.	102.	0.	169.	71.
80	150896.	0.	15649.	70.	65.	0.	62.	36.
85	91394.	0.	17321.	57.	26.	0.	63.	12.
total	10790837.	120768.	100380.	11997.	8398.	0.	17048.	6129.

region south

age	population	births	deaths	migration from south to n-west	n-east	central	south	islands
0	1207493.	0.	5168.	3076.	941.	1854.	0.	434.
5	1209045.	0.	344.	2794.	914.	1799.	0.	385.
10	1285842.	39.	433.	2772.	821.	1518.	0.	428.
15	1207675.	23525.	610.	7433.	2022.	2530.	0.	374.
20	1087519.	65371.	630.	13466.	4016.	5808.	0.	978.
25	1007182.	70951.	629.	8207.	2696.	4863.	0.	824.
30	808009.	42340.	695.	3684.	1358.	2677.	0.	521.
35	776046.	18297.	929.	2051.	817.	1720.	0.	303.
40	782050.	5740.	1590.	1504.	567.	1248.	0.	234.
45	789243.	478.	2647.	1184.	387.	942.	0.	193.
50	750424.	29.	4303.	920.	320.	747.	0.	177.
55	588640.	0.	5514.	659.	268.	705.	0.	124.
60	519330.	0.	7478.	547.	213.	492.	0.	79.
65	546164.	0.	12714.	489.	147.	491.	0.	71.
70	406285.	0.	15650.	369.	110.	353.	0.	45.
75	272138.	0.	17647.	230.	95.	251.	0.	30.
80	141383.	0.	16243.	159.	48.	120.	0.	18.
85	87354.	0.	17851.	67.	20.	78.	0.	9.
total	13471822.	226770.	111075.	49611.	15760.	28196.	0.	5227.

APPENDIX A *Continued.*

region islands

age	population	births	deaths	migration from islands to n-west	n-east	central	south	islands
0	563913.	0.	2056.	1642.	430.	628.	416.	0.
5	565034.	0.	187.	1585.	483.	663.	413.	0.
10	586782.	17.	212.	1550.	431.	595.	340.	0.
15	571636.	12992.	286.	3683.	687.	1012.	342.	0.
20	520767.	29279.	316.	6433.	1391.	2049.	956.	0.
25	488914.	31168.	331.	4165.	1095.	1499.	894.	0.
30	396998.	19226.	388.	2114.	595.	924.	588.	0.
35	386544.	8912.	490.	1153.	367.	648.	374.	0.
40	375845.	2806.	745.	818.	263.	444.	240.	0.
45	378367.	229.	1183.	624.	177.	331.	193.	0.
50	361646.	5.	1929.	473.	119.	264.	155.	0.
55	287607.	0.	2472.	367.	124.	243.	97.	0.
60	267385.	0.	3694.	305.	77.	145.	64.	0.
65	279438.	0.	6207.	303.	63.	153.	57.	0.
70	212351.	0.	7811.	186.	36.	114.	39.	0.
75	144374.	0.	9152.	178.	36.	86.	27.	0.
80	78699.	0.	8830.	90.	15.	39.	19.	0.
85	51988.	0.	10323.	33.	4.	21.	8.	0.
total	6516288.	104634.	56612.	25702.	6393.	9858.	5222.	0.

Observed population characteristics: 20 regions.

REGION PIEMONTE

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM PIEMONTE TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	277364.	0.	911.	0.	30.	305.	203.	9.	158.	33.	111.	113.	17.
5	311941.	0.	104.	0.	54.	351.	206.	16.	144.	45.	130.	118.	24.
10	324123.	4.	111.	0.	24.	315.	189.	5.	161.	45.	116.	108.	31.
15	287288.	4062.	199.	0.	39.	274.	197.	17.	119.	32.	99.	89.	4.
20	272176.	12962.	229.	0.	104.	784.	394.	45.	256.	97.	201.	219.	40.
25	315842.	15815.	233.	0.	75.	761.	423.	34.	226.	83.	188.	212.	56.
30	313797.	8648.	243.	0.	59.	638.	297.	21.	228.	62.	175.	171.	41.
35	338426.	3254.	456.	0.	36.	479.	270.	25.	182.	59.	163.	140.	49.
40	323234.	810.	779.	0.	30.	315.	223.	10.	170.	48.	121.	100.	25.
45	323002.	66.	1269.	0.	16.	216.	209.	10.	135.	29.	86.	80.	19.
50	301294.	4.	2018.	0.	19.	205.	227.	7.	124.	35.	88.	61.	19.
55	238000.	0.	2496.	0.	24.	181.	265.	13.	118.	39.	79.	63.	14.
60	222631.	0.	3347.	0.	17.	113.	253.	4.	104.	29.	52.	45.	16.
65	247971.	0.	6107.	0.	15.	116.	207.	2.	65.	19.	31.	37.	5.
70	194028.	0.	7822.	0.	12.	66.	137.	9.	40.	9.	26.	26.	7.
75	133805.	0.	8929.	0.	1.	72.	95.	1.	28.	6.	15.	21.	4.
80	73335.	0.	8500.	0.	1.	28.	56.	1.	13.	2.	16.	8.	1.
85	42429.	0.	8773.	0.	0.	31.	22.	0.	10.	5.	1.	9.	0.
TOTAL	4540696.	45625.	52526.	0.	556.	5250.	3873.	229.	2281.	677.	1698.	1640.	372.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	42.	178.	60.	29.	339.	401.	72.	284.	562.	145.
5	50.	177.	56.	24.	282.	383.	59.	252.	552.	143.
10	27.	145.	47.	20.	276.	288.	52.	289.	560.	158.
15	20.	118.	26.	17.	342.	416.	104.	319.	571.	176.
20	64.	289.	84.	27.	654.	761.	200.	674.	948.	300.
25	78.	307.	92.	48.	604.	645.	162.	557.	897.	250.
30	80.	330.	48.	38.	535.	560.	70.	356.	642.	202.
35	58.	224.	59.	16.	266.	294.	38.	222.	379.	177.
40	37.	115.	48.	18.	162.	190.	37.	158.	248.	115.
45	16.	76.	30.	13.	136.	154.	26.	169.	189.	70.
50	18.	78.	30.	10.	118.	127.	28.	140.	181.	79.
55	23.	47.	31.	10.	112.	146.	48.	150.	202.	71.
60	15.	32.	14.	8.	69.	99.	23.	115.	168.	48.
65	12.	28.	10.	8.	74.	100.	25.	77.	116.	25.
70	5.	23.	3.	0.	38.	45.	13.	43.	91.	17.
75	4.	16.	3.	2.	26.	20.	5.	18.	44.	14.
80	2.	12.	1.	0.	4.	17.	10.	1.	16.	1.
85	1.	1.	2.	0.	3.	8.	0.	3.	12.	2.
TOTAL	552.	2196.	644.	288.	4040.	4654.	972.	3827.	6378.	1993.

APPENDIX A *Continued.*

REGION VALAOSTA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM VALAOSTA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	6916.	0.	11.	37.	0.	5.	1.	0.	3.	3.	1.	2.	2.
5	7965.	0.	6.	42.	0.	22.	1.	0.	5.	2.	7.	4.	1.
10	8410.	0.	1.	28.	0.	10.	1.	1.	8.	0.	3.	1.	3.
15	7548.	182.	11.	30.	0.	7.	6.	0.	4.	1.	1.	3.	3.
20	7577.	366.	8.	96.	0.	13.	6.	3.	12.	4.	4.	11.	0.
25	8681.	397.	6.	66.	0.	27.	4.	3.	6.	4.	3.	4.	4.
30	8080.	197.	18.	50.	0.	16.	2.	1.	11.	4.	2.	5.	2.
35	8707.	96.	17.	43.	0.	7.	4.	0.	5.	1.	4.	7.	2.
40	7876.	33.	30.	30.	0.	16.	2.	0.	1.	0.	3.	7.	3.
45	8238.	4.	42.	22.	0.	6.	7.	1.	2.	0.	4.	5.	0.
50	7604.	0.	74.	24.	0.	7.	2.	0.	3.	0.	5.	1.	0.
55	6293.	0.	88.	19.	0.	1.	0.	0.	2.	0.	1.	2.	2.
60	5533.	0.	100.	16.	0.	3.	6.	0.	4.	1.	0.	1.	0.
65	5788.	0.	133.	8.	0.	2.	5.	0.	1.	3.	0.	0.	0.
70	4218.	0.	195.	10.	0.	1.	0.	0.	1.	1.	0.	0.	0.
75	2689.	0.	170.	5.	0.	4.	0.	0.	0.	0.	2.	0.	0.
80	1421.	0.	155.	6.	0.	1.	0.	0.	0.	0.	0.	0.	0.
85	736.	0.	168.	7.	0.	0.	0.	0.	1.	0.	0.	0.	0.
TOTAL	114280.	1275.	1233.	539.	0.	148.	47.	9.	69.	24.	40.	47.	22.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	1.	3.	2.	0.	6.	3.	0.	7.	1.	4.
5	4.	3.	1.	0.	4.	2.	0.	13.	4.	0.
10	0.	5.	2.	0.	5.	0.	0.	6.	1.	3.
15	0.	4.	0.	0.	3.	2.	0.	7.	5.	3.
20	1.	15.	0.	0.	6.	4.	0.	14.	6.	1.
25	2.	11.	6.	0.	8.	1.	1.	10.	10.	1.
30	6.	6.	2.	1.	6.	3.	0.	7.	3.	2.
35	4.	4.	2.	2.	2.	5.	0.	13.	3.	5.
40	2.	2.	1.	0.	6.	2.	0.	2.	3.	2.
45	1.	3.	1.	0.	3.	0.	0.	1.	0.	0.
50	1.	2.	0.	0.	1.	1.	0.	0.	2.	0.
55	0.	2.	0.	1.	2.	2.	0.	0.	2.	1.
60	0.	3.	0.	0.	2.	0.	0.	2.	2.	0.
65	1.	0.	1.	0.	0.	0.	0.	1.	2.	0.
70	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
75	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
80	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
85	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
TOTAL	25.	64.	18.	4.	54.	25.	1.	84.	44.	23.

REGION LOMBARD.

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM LOMBARD. TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	599872.	0.	1718.	316.	19.	0.	162.	68.	382.	92.	422.	181.	50.
5	672658.	0.	162.	348.	11.	0.	173.	59.	317.	106.	391.	206.	48.
10	717413.	7.	209.	325.	18.	0.	163.	57.	332.	103.	350.	190.	29.
15	625269.	7601.	401.	294.	9.	0.	162.	46.	242.	60.	312.	128.	19.
20	570658.	26366.	428.	854.	24.	0.	311.	149.	630.	142.	624.	344.	60.
25	642914.	34423.	438.	722.	18.	0.	319.	140.	616.	149.	785.	403.	88.
30	635713.	20317.	552.	547.	17.	0.	247.	102.	525.	146.	607.	290.	73.
35	691643.	8110.	884.	440.	17.	0.	240.	76.	490.	150.	516.	233.	48.
40	634740.	2015.	1511.	297.	12.	0.	206.	46.	379.	86.	404.	195.	53.
45	614547.	139.	2672.	243.	9.	0.	164.	43.	292.	56.	289.	143.	28.
50	571434.	10.	4375.	217.	7.	0.	174.	32.	253.	85.	255.	144.	22.
55	442483.	0.	5292.	193.	3.	0.	261.	45.	248.	97.	289.	148.	22.
60	397495.	0.	6555.	170.	3.	0.	246.	20.	210.	73.	215.	110.	20.
65	424591.	0.	11455.	136.	0.	0.	273.	24.	150.	49.	137.	82.	21.
70	314123.	0.	13374.	87.	0.	0.	139.	20.	110.	28.	88.	33.	4.
75	202600.	0.	14107.	70.	0.	0.	97.	7.	83.	19.	68.	31.	5.
80	106295.	0.	12184.	43.	1.	0.	32.	5.	37.	7.	29.	11.	2.
85	51941.	0.	10994.	29.	0.	0.	26.	4.	18.	7.	27.	7.	2.
TOTAL	8910389.	98998.	87311.	5331.	168.	0.	3395.	943.	5314.	1455.	6008.	2866.	504.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	100.	313.	101.	39.	491.	558.	75.	313.	686.	175.
5	127.	351.	115.	27.	450.	516.	50.	287.	687.	153.
10	107.	265.	103.	19.	393.	457.	41.	228.	688.	111.
15	45.	183.	50.	14.	399.	418.	65.	317.	558.	108.
20	150.	423.	122.	32.	794.	804.	135.	566.	1083.	253.
25	185.	536.	173.	57.	878.	855.	137.	545.	1106.	250.
30	175.	539.	167.	43.	697.	624.	71.	382.	862.	211.
35	150.	418.	128.	35.	411.	442.	55.	246.	530.	162.
40	85.	260.	65.	21.	245.	254.	37.	157.	359.	79.
45	50.	168.	46.	13.	237.	194.	31.	143.	321.	51.
50	55.	145.	50.	22.	213.	206.	42.	160.	253.	70.
55	57.	110.	29.	16.	214.	214.	21.	129.	253.	80.
60	51.	60.	40.	9.	114.	152.	25.	76.	193.	38.
65	33.	51.	16.	7.	112.	135.	21.	75.	150.	18.
70	20.	33.	17.	2.	76.	65.	11.	33.	92.	14.
75	15.	24.	7.	5.	51.	50.	9.	18.	51.	14.
80	4.	19.	4.	0.	13.	14.	3.	15.	23.	5.
85	3.	10.	0.	0.	4.	2.	2.	3.	5.	0.
TOTAL	1412.	3908.	1233.	361.	5792.	5960.	831.	3693.	7900.	1792.

APPENDIX A *Continued.*

REGION LIGURIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM LIGURIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	92228.	0.	291.	150.	5.	146.	0.	6.	33.	11.	76.	98.	2.
5	113107.	0.	24.	182.	5.	155.	0.	3.	33.	9.	53.	121.	7.
10	125149.	0.	31.	150.	3.	159.	0.	8.	15.	7.	52.	104.	14.
15	113162.	1077.	76.	188.	7.	132.	0.	2.	22.	4.	73.	106.	3.
20	103265.	3432.	75.	452.	5.	259.	0.	8.	55.	27.	111.	220.	11.
25	114279.	5101.	72.	385.	12.	353.	0.	17.	49.	33.	103.	255.	15.
30	119396.	3228.	92.	284.	12.	289.	0.	11.	47.	22.	124.	182.	10.
35	130650.	1341.	161.	235.	10.	217.	0.	9.	24.	17.	73.	129.	8.
40	127125.	296.	249.	152.	0.	147.	0.	4.	29.	12.	58.	98.	3.
45	135650.	25.	512.	155.	6.	105.	0.	3.	26.	9.	65.	82.	5.
50	133868.	0.	836.	169.	5.	90.	0.	3.	27.	10.	49.	85.	4.
55	115639.	0.	1096.	159.	2.	87.	0.	4.	26.	19.	64.	92.	6.
60	108693.	0.	1582.	179.	3.	93.	0.	1.	25.	4.	51.	59.	3.
65	115073.	0.	2730.	171.	1.	101.	0.	5.	35.	10.	42.	42.	4.
70	89625.	0.	3511.	132.	0.	72.	0.	1.	18.	3.	32.	37.	5.
75	63168.	0.	3867.	101.	2.	60.	0.	1.	9.	6.	20.	29.	0.
80	37082.	0.	3858.	59.	0.	33.	0.	0.	8.	2.	10.	10.	2.
85	22068.	0.	4163.	27.	0.	18.	0.	0.	5.	1.	7.	17.	1.
TOTAL	1859227.	14500.	23226.	3330.	82.	2516.	0.	86.	486.	206.	1063.	1776.	103.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	13.	91.	8.	1.	65.	39.	2.	63.	107.	62.
5	12.	102.	18.	2.	51.	35.	4.	77.	117.	55.
10	16.	79.	14.	2.	38.	40.	4.	73.	122.	55.
15	7.	62.	19.	1.	54.	42.	16.	78.	113.	52.
20	17.	137.	34.	4.	115.	70.	21.	162.	177.	83.
25	17.	151.	37.	10.	114.	72.	15.	109.	154.	93.
30	18.	132.	21.	4.	98.	69.	6.	78.	114.	80.
35	25.	100.	14.	0.	66.	44.	3.	55.	82.	76.
40	9.	66.	19.	0.	46.	20.	5.	66.	56.	47.
45	10.	56.	15.	1.	26.	23.	4.	47.	60.	41.
50	9.	48.	9.	1.	31.	23.	2.	39.	62.	21.
55	11.	46.	15.	1.	21.	10.	7.	40.	40.	32.
60	7.	40.	11.	2.	17.	3.	4.	31.	38.	15.
65	5.	24.	8.	0.	15.	11.	4.	26.	32.	14.
70	6.	23.	3.	0.	21.	9.	0.	5.	17.	8.
75	3.	13.	2.	0.	14.	3.	0.	8.	9.	11.
80	0.	11.	1.	0.	6.	1.	0.	2.	12.	3.
85	2.	5.	0.	0.	0.	2.	0.	3.	3.	0.
TOTAL	187.	1186.	248.	29.	798.	516.	97.	962.	1315.	748.

REGION TRENTINO

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM TRENTINO TO PIEMONTE	VALADSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	60860.	0.	114.	18.	1.	45.	8.	0.	85.	10.	25.	15.	1.
5	71979.	0.	22.	12.	2.	55.	7.	0.	83.	16.	26.	12.	3.
10	78506.	2.	22.	15.	0.	33.	6.	0.	93.	9.	20.	9.	1.
15	70714.	791.	46.	11.	0.	54.	7.	0.	80.	8.	12.	11.	0.
20	63076.	2529.	54.	46.	6.	159.	16.	0.	206.	39.	42.	44.	4.
25	63237.	3504.	62.	18.	4.	163.	19.	0.	210.	18.	62.	40.	5.
30	60121.	2217.	63.	42.	5.	100.	15.	0.	152.	19.	30.	15.	2.
35	60345.	1171.	101.	23.	0.	59.	7.	0.	111.	21.	29.	15.	1.
40	51377.	303.	121.	7.	0.	45.	4.	0.	71.	13.	16.	14.	2.
45	53043.	32.	233.	4.	0.	36.	5.	0.	80.	13.	13.	9.	2.
50	53758.	2.	405.	9.	0.	28.	5.	0.	58.	6.	15.	4.	2.
55	42493.	0.	536.	4.	0.	23.	2.	0.	37.	8.	10.	15.	1.
60	32989.	0.	530.	5.	0.	13.	2.	0.	39.	7.	8.	5.	0.
65	42098.	0.	1078.	6.	0.	17.	2.	0.	35.	6.	5.	2.	3.
70	30840.	0.	1272.	2.	0.	14.	3.	0.	13.	3.	4.	0.	0.
75	20512.	0.	1427.	1.	0.	10.	4.	0.	14.	1.	2.	2.	0.
80	10582.	0.	1189.	0.	0.	6.	0.	0.	4.	1.	1.	1.	0.
85	5709.	0.	1117.	0.	0.	2.	3.	0.	2.	1.	0.	1.	0.
TOTAL	872219.	10551.	8392.	223.	18.	862.	115.	0.	1373.	201.	320.	216.	32.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	7.	26.	9.	2.	7.	11.	4.	2.	17.	5.
5	8.	30.	4.	0.	15.	13.	0.	2.	23.	3.
10	4.	23.	3.	0.	13.	9.	1.	1.	20.	8.
15	3.	17.	2.	0.	13.	3.	2.	9.	6.	0.
20	21.	49.	9.	0.	38.	18.	2.	8.	28.	3.
25	9.	58.	6.	2.	27.	28.	2.	12.	33.	4.
30	9.	46.	10.	3.	23.	21.	4.	8.	18.	5.
35	14.	43.	7.	3.	16.	13.	0.	2.	20.	5.
40	1.	17.	6.	3.	10.	4.	1.	7.	19.	0.
45	3.	17.	4.	2.	8.	3.	0.	3.	16.	4.
50	3.	11.	3.	0.	3.	2.	0.	2.	7.	1.
55	0.	7.	1.	1.	1.	1.	0.	3.	10.	2.
60	0.	7.	1.	0.	2.	0.	4.	3.	3.	0.
65	4.	4.	0.	0.	0.	0.	0.	2.	1.	0.
70	0.	3.	0.	0.	3.	2.	0.	0.	3.	0.
75	0.	2.	0.	0.	0.	1.	0.	0.	3.	0.
80	1.	0.	0.	0.	1.	0.	0.	0.	0.	1.
85	1.	0.	0.	0.	1.	0.	0.	0.	1.	0.
TOTAL	88.	360.	65.	16.	181.	129.	20.	64.	230.	41.

APPENDIX A *Continued.*

REGION VENETO

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM VENETO TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	299906.	0.	845.	64.	2.	216.	22.	50.	0.	147.	147.	45.	5.
5	341223.	0.	122.	71.	0.	225.	27.	63.	0.	170.	143.	43.	8.
10	370112.	1.	114.	70.	4.	204.	31.	63.	0.	153.	142.	39.	10.
15	337354.	4155.	269.	106.	0.	236.	31.	60.	0.	177.	99.	36.	4.
20	306652.	14245.	264.	225.	13.	601.	59.	158.	0.	461.	363.	114.	11.
25	317258.	16939.	250.	151.	4.	520.	46.	154.	0.	406.	338.	108.	15.
30	298037.	9662.	292.	92.	3.	371.	43.	105.	0.	269.	212.	95.	15.
35	301116.	4123.	468.	79.	1.	287.	42.	71.	0.	212.	161.	64.	12.
40	273751.	1062.	761.	74.	2.	197.	32.	42.	0.	127.	106.	49.	4.
45	270690.	81.	1239.	62.	2.	149.	26.	53.	0.	112.	91.	25.	4.
50	274361.	1.	2008.	41.	1.	145.	20.	31.	0.	81.	71.	43.	7.
55	212346.	0.	2397.	33.	2.	104.	30.	35.	0.	87.	59.	14.	3.
60	188410.	0.	3008.	32.	0.	93.	13.	8.	0.	57.	34.	16.	1.
65	198780.	0.	4965.	40.	1.	85.	16.	18.	0.	47.	42.	21.	0.
70	148236.	0.	6068.	38.	1.	74.	9.	17.	0.	35.	35.	13.	3.
75	99837.	0.	6537.	38.	0.	60.	5.	9.	0.	23.	22.	17.	1.
80	53677.	0.	5853.	18.	0.	45.	12.	3.	0.	13.	13.	8.	2.
85	29138.	0.	5772.	13.	1.	24.	1.	0.	0.	11.	4.	2.	0.
TOTAL	4320886.	50269.	41232.	1247.	37.	3637.	465.	940.	0.	2588.	2062.	745.	105.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	32.	90.	23.	6.	48.	48.	0.	20.	90.	31.
5	29.	78.	21.	2.	51.	44.	2.	24.	73.	21.
10	24.	69.	18.	1.	41.	48.	3.	23.	74.	26.
15	13.	63.	5.	4.	53.	38.	3.	16.	72.	15.
20	53.	142.	22.	6.	131.	100.	14.	49.	119.	46.
25	72.	190.	49.	11.	110.	114.	13.	76.	161.	23.
30	59.	162.	39.	3.	96.	90.	2.	23.	136.	34.
35	41.	119.	26.	0.	85.	57.	2.	21.	81.	32.
40	12.	67.	11.	0.	35.	29.	0.	14.	61.	16.
45	23.	42.	9.	2.	34.	33.	4.	4.	48.	8.
50	7.	27.	7.	0.	32.	22.	2.	15.	26.	10.
55	11.	30.	5.	0.	18.	33.	3.	9.	20.	5.
60	8.	27.	3.	0.	7.	7.	1.	7.	20.	3.
65	6.	18.	8.	0.	9.	19.	1.	8.	16.	0.
70	5.	16.	2.	0.	10.	7.	0.	1.	9.	3.
75	2.	15.	3.	2.	10.	6.	0.	0.	6.	1.
80	2.	8.	2.	2.	6.	2.	0.	1.	4.	1.
85	0.	7.	0.	0.	0.	1.	0.	0.	3.	1.
TOTAL	399.	1170.	253.	39.	776.	698.	50.	311.	1019.	276.

REGION FRIULI

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM FRIULI TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	70910.	0.	161.	18.	0.	52.	13.	12.	176.	0.	19.	12.	6.
5	81576.	0.	28.	22.	0.	31.	6.	12.	179.	0.	20.	17.	5.
10	88239.	0.	22.	28.	1.	42.	7.	10.	141.	0.	18.	25.	6.
15	79978.	1133.	61.	24.	2.	46.	11.	11.	110.	0.	10.	18.	6.
20	72511.	3116.	87.	63.	1.	129.	19.	27.	389.	0.	49.	45.	9.
25	82854.	3976.	72.	37.	3.	96.	24.	19.	341.	0.	44.	50.	8.
30	85066.	2365.	98.	39.	0.	87.	20.	16.	286.	0.	28.	33.	4.
35	90293.	886.	155.	28.	0.	47.	14.	21.	199.	0.	25.	27.	6.
40	78825.	189.	277.	30.	1.	36.	9.	10.	158.	0.	23.	16.	9.
45	78702.	13.	389.	18.	2.	40.	10.	7.	87.	0.	8.	26.	1.
50	85463.	1.	657.	17.	0.	28.	10.	5.	94.	0.	6.	6.	2.
55	75888.	0.	939.	19.	0.	24.	6.	11.	82.	0.	13.	16.	1.
60	65000.	0.	1172.	5.	0.	16.	5.	2.	66.	0.	4.	8.	3.
65	78560.	0.	2058.	14.	0.	22.	3.	5.	67.	0.	4.	7.	0.
70	59153.	0.	2469.	3.	1.	17.	3.	2.	35.	0.	3.	8.	0.
75	39175.	0.	2556.	2.	0.	13.	0.	6.	27.	0.	8.	1.	2.
80	20763.	0.	2185.	3.	0.	10.	1.	0.	18.	0.	2.	3.	0.
85	12237.	0.	2265.	5.	0.	8.	1.	0.	14.	0.	1.	1.	0.
TOTAL	1245193.	11679.	15651.	375.	11.	744.	162.	176.	2449.	0.	285.	317.	62.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	13.	47.	6.	1.	28.	35.	1.	7.	27.	18.
5	10.	37.	5.	2.	21.	28.	1.	4.	33.	17.
10	4.	38.	4.	2.	10.	32.	2.	7.	40.	9.
15	5.	35.	6.	2.	34.	28.	0.	12.	24.	8.
20	18.	97.	6.	7.	91.	52.	8.	30.	66.	25.
25	18.	126.	12.	5.	76.	61.	7.	17.	65.	24.
30	16.	87.	3.	3.	51.	47.	5.	12.	55.	16.
35	15.	63.	4.	2.	24.	24.	0.	13.	29.	15.
40	9.	37.	3.	0.	15.	20.	1.	9.	20.	13.
45	3.	27.	6.	0.	12.	9.	0.	7.	12.	6.
50	4.	26.	3.	3.	12.	6.	0.	4.	15.	7.
55	1.	17.	3.	0.	24.	3.	0.	3.	8.	2.
60	4.	20.	3.	0.	9.	6.	0.	3.	8.	2.
65	3.	17.	3.	3.	13.	6.	0.	5.	8.	0.
70	1.	7.	0.	1.	0.	0.	0.	3.	7.	0.
75	0.	4.	0.	0.	4.	0.	0.	1.	4.	0.
80	1.	4.	0.	0.	0.	1.	0.	0.	0.	0.
85	0.	2.	0.	0.	0.	1.	0.	0.	0.	4.
TOTAL	125.	691.	67.	31.	424.	359.	25.	137.	421.	166.

APPENDIX A *Continued.*

REGION EMILIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM EMILIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	220030.	0.	593.	50.	2.	221.	40.	14.	111.	15.	0.	98.	30.
5	253586.	0.	84.	64.	0.	191.	33.	17.	99.	18.	0.	88.	17.
10	273073.	2.	100.	48.	0.	211.	32.	3.	88.	20.	0.	98.	24.
15	257637.	4241.	211.	60.	3.	211.	56.	12.	78.	17.	0.	71.	10.
20	243808.	9837.	200.	138.	3.	568.	93.	24.	259.	35.	0.	194.	36.
25	267923.	11427.	219.	143.	5.	616.	83.	33.	272.	44.	0.	194.	35.
30	264684.	6766.	237.	88.	0.	395.	91.	25.	230.	33.	0.	173.	43.
35	279144.	2752.	336.	63.	0.	318.	51.	16.	129.	25.	0.	127.	34.
40	272125.	706.	479.	55.	0.	215.	36.	16.	93.	21.	0.	97.	25.
45	276607.	37.	977.	50.	0.	154.	32.	9.	61.	12.	0.	77.	9.
50	286949.	2.	1690.	27.	1.	139.	45.	5.	65.	12.	0.	79.	16.
55	241429.	0.	2289.	27.	0.	126.	42.	3.	60.	8.	0.	46.	8.
60	215723.	0.	2997.	23.	2.	76.	48.	7.	62.	10.	0.	40.	1.
65	227234.	0.	5046.	34.	2.	79.	29.	9.	40.	15.	0.	46.	4.
70	166060.	0.	6203.	22.	0.	52.	33.	4.	26.	5.	0.	23.	3.
75	111967.	0.	6751.	13.	1.	40.	10.	1.	37.	4.	0.	30.	2.
80	62397.	0.	6637.	7.	1.	35.	11.	0.	25.	3.	0.	20.	0.
85	36082.	0.	7015.	6.	0.	18.	6.	2.	7.	0.	0.	6.	0.
TOTAL	3956458.	35770.	42064.	918.	20.	3671.	771.	200.	1742.	297.	0.	1509.	297.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	98.	80.	27.	3.	163.	79.	13.	34.	89.	27.
5	75.	89.	39.	6.	115.	69.	12.	34.	87.	21.
10	77.	74.	41.	9.	101.	83.	10.	31.	102.	27.
15	36.	69.	24.	5.	180.	70.	22.	58.	129.	27.
20	164.	153.	71.	9.	284.	222.	29.	109.	219.	75.
25	197.	174.	78.	13.	202.	135.	35.	69.	172.	50.
30	141.	165.	48.	11.	118.	111.	9.	43.	131.	26.
35	98.	125.	34.	6.	103.	56.	12.	27.	64.	23.
40	69.	89.	23.	7.	75.	44.	7.	24.	72.	19.
45	60.	79.	31.	1.	47.	44.	5.	20.	56.	18.
50	53.	50.	15.	1.	40.	28.	1.	8.	45.	9.
55	41.	38.	16.	3.	40.	33.	6.	18.	34.	10.
60	32.	26.	7.	3.	11.	22.	3.	10.	18.	10.
65	23.	22.	6.	0.	37.	19.	5.	5.	21.	5.
70	13.	12.	0.	3.	17.	5.	0.	4.	15.	2.
75	18.	15.	3.	0.	14.	10.	0.	3.	8.	1.
80	12.	10.	0.	2.	3.	7.	0.	0.	2.	0.
85	9.	4.	0.	0.	3.	2.	2.	1.	5.	1.
TOTAL	1216.	1274.	463.	82.	1553.	1039.	171.	498.	1269.	351.

REGION TOSCANA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM TOSCANA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	206713.	0.	562.	43.	1.	133.	120.	8.	39.	14.	95.	0.	70.
5	230328.	0.	70.	33.	3.	115.	101.	6.	37.	10.	78.	0.	54.
10	245969.	1.	68.	38.	1.	114.	97.	3.	43.	5.	72.	0.	53.
15	227925.	3084.	136.	78.	3.	90.	111.	6.	27.	18.	87.	0.	33.
20	214159.	9494.	144.	159.	6.	249.	263.	14.	101.	38.	240.	0.	88.
25	243290.	11769.	168.	119.	10.	311.	241.	21.	73.	21.	183.	0.	107.
30	241402.	7067.	172.	85.	3.	232.	144.	11.	71.	19.	136.	0.	86.
35	248753.	2621.	291.	45.	1.	177.	103.	8.	59.	15.	90.	0.	59.
40	237530.	650.	466.	37.	2.	102.	77.	3.	51.	10.	78.	0.	59.
45	246062.	46.	761.	38.	2.	85.	80.	2.	38.	6.	65.	0.	31.
50	253121.	4.	1399.	39.	0.	65.	62.	1.	31.	7.	54.	0.	38.
55	219311.	0.	1976.	27.	2.	50.	60.	1.	19.	9.	61.	0.	32.
60	185000.	0.	2425.	17.	0.	41.	37.	9.	25.	8.	31.	0.	22.
65	209958.	0.	4379.	23.	0.	62.	49.	2.	12.	4.	38.	0.	33.
70	161044.	0.	5514.	16.	0.	19.	32.	2.	9.	2.	29.	0.	12.
75	114046.	0.	6532.	14.	0.	17.	19.	0.	11.	3.	24.	0.	8.
80	63182.	0.	6436.	16.	0.	13.	12.	1.	13.	0.	18.	0.	11.
85	39508.	0.	7542.	5.	0.	5.	9.	2.	1.	1.	9.	0.	5.
TOTAL	3587301.	34736.	39041.	832.	34.	1880.	1617.	100.	660.	190.	1388.	0.	801.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	30.	159.	23.	5.	151.	63.	15.	26.	104.	54.
5	38.	187.	16.	1.	109.	62.	13.	32.	91.	34.
10	27.	161.	18.	4.	91.	52.	9.	19.	128.	28.
15	16.	139.	10.	5.	157.	36.	35.	41.	139.	35.
20	40.	304.	41.	10.	305.	127.	49.	84.	255.	95.
25	57.	329.	34.	16.	269.	149.	42.	69.	190.	93.
30	32.	330.	38.	5.	187.	92.	20.	47.	131.	67.
35	29.	227.	25.	1.	127.	55.	10.	24.	96.	54.
40	23.	160.	13.	0.	76.	42.	16.	30.	60.	33.
45	14.	130.	19.	2.	56.	40.	9.	18.	73.	25.
50	10.	103.	2.	1.	75.	24.	6.	27.	50.	28.
55	22.	81.	20.	0.	59.	17.	5.	15.	25.	32.
60	16.	59.	7.	3.	26.	18.	0.	10.	37.	13.
65	14.	60.	5.	1.	38.	13.	0.	11.	21.	18.
70	4.	38.	1.	0.	16.	12.	2.	5.	22.	12.
75	4.	35.	2.	0.	24.	5.	2.	3.	9.	9.
80	3.	21.	1.	0.	3.	2.	0.	0.	7.	6.
85	0.	13.	5.	0.	10.	1.	4.	0.	2.	1.
TOTAL	379.	2536.	280.	54.	1779.	810.	237.	457.	1440.	637.

APPENDIX A *Continued.*

REGION UMBRIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM UMBRIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	48389.	0.	114.	7.	2.	24.	5.	1.	7.	6.	8.	51.	0.
5	51072.	0.	7.	6.	0.	15.	3.	0.	4.	4.	9.	52.	0.
10	55350.	1.	15.	13.	0.	29.	4.	0.	11.	3.	16.	40.	0.
15	53686.	698.	30.	10.	1.	16.	3.	0.	4.	5.	20.	36.	0.
20	51360.	2567.	31.	24.	1.	58.	18.	7.	13.	6.	52.	147.	0.
25	55637.	3105.	26.	28.	0.	67.	19.	2.	18.	10.	46.	118.	0.
30	50521.	1559.	35.	10.	0.	50.	2.	3.	10.	11.	22.	74.	0.
35	53788.	544.	71.	16.	0.	28.	3.	2.	9.	2.	17.	57.	0.
40	53810.	132.	103.	8.	0.	17.	9.	2.	9.	1.	8.	41.	0.
45	56880.	6.	174.	10.	0.	11.	2.	0.	5.	2.	13.	29.	0.
50	60817.	1.	293.	3.	0.	8.	2.	0.	3.	1.	9.	30.	0.
55	50474.	0.	457.	1.	0.	5.	4.	0.	4.	3.	7.	32.	0.
60	43499.	0.	531.	2.	0.	4.	3.	0.	5.	3.	2.	18.	0.
65	44338.	0.	968.	0.	0.	8.	0.	0.	6.	0.	5.	11.	0.
70	31527.	0.	1161.	0.	0.	6.	0.	0.	0.	0.	0.	17.	0.
75	21544.	0.	1225.	3.	0.	4.	2.	0.	3.	0.	1.	12.	0.
80	12389.	0.	1322.	4.	0.	0.	0.	0.	1.	1.	1.	8.	0.
85	7375.	0.	1457.	1.	0.	1.	0.	1.	1.	0.	0.	0.	0.
TOTAL	802448.	8613.	8020.	146.	4.	351.	79.	18.	113.	58.	236.	762.	0.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	26.	121.	5.	0.	13.	8.	3.	4.	14.	4.
5	24.	114.	15.	1.	11.	15.	3.	1.	9.	5.
10	21.	94.	15.	1.	6.	9.	2.	3.	15.	2.
15	18.	104.	11.	0.	13.	6.	0.	1.	4.	11.
20	68.	283.	17.	5.	31.	18.	4.	10.	18.	13.
25	52.	304.	19.	7.	24.	9.	2.	6.	11.	8.
30	38.	161.	15.	4.	16.	8.	6.	2.	9.	6.
35	29.	142.	20.	3.	13.	11.	0.	4.	9.	8.
40	16.	113.	11.	0.	3.	6.	2.	0.	8.	0.
45	11.	73.	8.	0.	3.	10.	0.	1.	3.	0.
50	8.	60.	5.	0.	8.	3.	0.	3.	6.	2.
55	13.	51.	7.	2.	7.	6.	1.	2.	2.	3.
60	6.	41.	5.	0.	1.	1.	0.	0.	1.	1.
65	4.	54.	1.	0.	2.	4.	0.	0.	0.	0.
70	1.	23.	0.	0.	2.	2.	0.	0.	0.	0.
75	5.	30.	4.	1.	7.	1.	0.	0.	1.	0.
80	3.	18.	0.	0.	0.	0.	1.	0.	0.	0.
85	0.	10.	0.	0.	0.	4.	0.	0.	0.	0.
TOTAL	343.	1796.	158.	24.	160.	121.	24.	37.	110.	63.

REGION MARCHE

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM MARCHE TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	87900.	0.	261.	8.	0.	38.	10.	10.	13.	4.	74.	15.	45.
5	94767.	0.	26.	12.	1.	37.	11.	4.	23.	10.	74.	28.	20.
10	102788.	1.	28.	13.	0.	24.	8.	4.	19.	2.	70.	18.	25.
15	99196.	1161.	58.	18.	0.	37.	7.	6.	10.	4.	69.	14.	23.
20	94982.	4897.	53.	47.	2.	136.	11.	11.	38.	23.	247.	49.	73.
25	97478.	5810.	55.	31.	1.	146.	21.	14.	52.	12.	207.	62.	73.
30	87509.	2787.	74.	18.	2.	76.	17.	11.	49.	2.	128.	31.	42.
35	92798.	1043.	97.	20.	0.	56.	7.	3.	22.	12.	91.	30.	27.
40	94340.	268.	161.	9.	4.	40.	10.	3.	11.	0.	62.	25.	22.
45	95860.	18.	281.	8.	0.	24.	6.	0.	10.	1.	46.	14.	16.
50	99716.	0.	528.	10.	0.	28.	7.	1.	12.	6.	39.	7.	14.
55	81743.	0.	707.	11.	0.	13.	4.	0.	12.	4.	38.	14.	22.
60	73002.	0.	885.	9.	0.	15.	2.	1.	7.	0.	32.	5.	9.
65	77044.	0.	1626.	9.	0.	21.	0.	0.	2.	0.	22.	20.	13.
70	54351.	0.	2009.	5.	0.	6.	2.	0.	6.	0.	10.	5.	10.
75	37065.	0.	2247.	2.	1.	15.	0.	0.	5.	0.	8.	3.	9.
80	21262.	0.	2206.	0.	0.	4.	0.	0.	1.	0.	12.	1.	2.
85	11931.	0.	2256.	0.	0.	7.	1.	0.	0.	0.	2.	3.	3.
TOTAL	1403730.	15985.	13558.	230.	11.	723.	124.	68.	292.	80.	1231.	346.	454.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	0.	81.	50.	4.	19.	34.	7.	1.	14.	6.
5	0.	73.	47.	2.	17.	29.	2.	6.	11.	4.
10	0.	70.	53.	0.	31.	21.	2.	12.	15.	5.
15	0.	60.	43.	0.	19.	9.	1.	7.	8.	5.
20	0.	210.	88.	6.	36.	39.	2.	15.	17.	18.
25	0.	229.	102.	7.	27.	55.	6.	11.	16.	10.
30	0.	145.	76.	2.	31.	38.	5.	15.	19.	10.
35	0.	107.	54.	0.	22.	24.	2.	3.	11.	7.
40	0.	78.	34.	3.	14.	16.	0.	4.	13.	2.
45	0.	74.	43.	5.	11.	9.	2.	4.	7.	1.
50	0.	62.	41.	2.	10.	10.	1.	3.	6.	0.
55	0.	55.	33.	1.	5.	7.	0.	3.	6.	3.
60	0.	36.	13.	0.	2.	5.	0.	2.	4.	1.
65	0.	37.	8.	0.	5.	0.	1.	0.	4.	0.
70	0.	25.	7.	0.	4.	5.	0.	4.	0.	0.
75	0.	17.	6.	0.	5.	2.	0.	0.	4.	1.
80	0.	13.	2.	0.	3.	1.	0.	0.	1.	1.
85	0.	9.	3.	0.	1.	0.	0.	0.	0.	0.
TOTAL	0.	1381.	703.	32.	262.	304.	31.	90.	156.	74.

APPENDIX A *Continued.*

REGION LAZIO

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM LAZIO TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	360967.	0.	1031.	98.	2.	199.	37.	20.	76.	33.	98.	166.	162.
5	399063.	0.	112.	111.	3.	218.	63.	12.	79.	28.	108.	167.	124.
10	425119.	4.	119.	91.	1.	202.	46.	7.	66.	36.	90.	159.	118.
15	382185.	5229.	229.	187.	5.	191.	50.	18.	67.	38.	111.	221.	126.
20	351190.	17400.	215.	417.	17.	600.	172.	52.	214.	128.	304.	493.	302.
25	359672.	20772.	217.	299.	11.	514.	147.	48.	233.	105.	238.	412.	284.
30	339950.	11970.	291.	154.	4.	327.	82.	40.	159.	69.	162.	256.	163.
35	355646.	4738.	396.	125.	7.	270.	69.	30.	106.	55.	110.	192.	175.
40	344929.	1217.	589.	75.	2.	154.	38.	10.	86.	35.	71.	160.	138.
45	336243.	101.	1078.	64.	0.	109.	49.	10.	63.	37.	54.	139.	107.
50	321286.	3.	1784.	53.	1.	84.	23.	8.	51.	20.	53.	145.	96.
55	255342.	0.	2334.	54.	0.	76.	44.	8.	50.	23.	64.	136.	88.
60	216143.	0.	2889.	27.	0.	67.	30.	11.	41.	25.	52.	112.	102.
65	214124.	0.	4863.	36.	0.	55.	35.	6.	47.	19.	42.	84.	97.
70	149988.	0.	5795.	18.	0.	34.	18.	8.	17.	11.	33.	57.	37.
75	98868.	0.	6068.	21.	0.	22.	9.	4.	14.	10.	19.	25.	33.
80	54063.	0.	5685.	6.	0.	10.	5.	0.	10.	2.	5.	21.	20.
85	32580.	0.	6066.	5.	0.	15.	8.	1.	5.	2.	1.	17.	12.
TOTAL	4997358.	61434.	39761.	1841.	53.	3147.	925.	293.	1384.	676.	1611.	2922.	2170.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	93.	0.	156.	33.	351.	121.	16.	106.	159.	138.
5	87.	0.	158.	35.	297.	139.	12.	107.	147.	97.
10	92.	0.	192.	23.	306.	126.	19.	92.	140.	83.
15	59.	0.	103.	25.	274.	93.	18.	80.	120.	76.
20	231.	0.	366.	65.	694.	296.	61.	227.	322.	197.
25	200.	0.	352.	71.	795.	304.	33.	203.	350.	224.
30	142.	0.	229.	37.	553.	161.	30.	118.	208.	153.
35	119.	0.	176.	43.	386.	106.	22.	109.	161.	111.
40	103.	0.	152.	20.	274.	100.	15.	79.	107.	53.
45	81.	0.	120.	29.	234.	75.	15.	71.	116.	65.
50	72.	0.	117.	41.	202.	68.	7.	67.	78.	41.
55	93.	0.	129.	26.	174.	67.	19.	52.	86.	52.
60	92.	0.	94.	20.	110.	52.	16.	32.	69.	39.
65	73.	0.	92.	18.	118.	33.	13.	54.	62.	30.
70	48.	0.	63.	10.	68.	41.	6.	20.	52.	16.
75	45.	0.	15.	7.	49.	15.	4.	17.	35.	12.
80	23.	0.	10.	1.	17.	9.	1.	11.	18.	3.
85	16.	0.	16.	3.	11.	4.	0.	1.	5.	4.
TOTAL	1667.	0.	2522.	507.	4913.	1810.	307.	1426.	2255.	1394.

REGION ABRUZZI

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM ABRUZZI TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	86319.	0.	263.	37.	0.	75.	8.	2.	16.	11.	59.	29.	9.
5	88849.	0.	26.	38.	0.	66.	9.	1.	21.	2.	30.	27.	5.
10	97902.	1.	22.	37.	0.	52.	6.	0.	12.	10.	49.	17.	5.
15	94502.	1583.	51.	94.	0.	116.	16.	4.	24.	8.	100.	45.	12.
20	91354.	5054.	49.	144.	9.	244.	46.	28.	72.	21.	174.	78.	27.
25	90323.	5184.	61.	102.	1.	240.	26.	13.	72.	21.	144.	83.	13.
30	71595.	2489.	60.	44.	0.	123.	8.	9.	36.	19.	69.	39.	12.
35	72222.	968.	74.	26.	0.	74.	9.	2.	20.	6.	55.	27.	8.
40	77708.	301.	134.	25.	0.	43.	7.	2.	18.	8.	31.	9.	11.
45	80261.	20.	264.	24.	0.	25.	2.	2.	14.	2.	25.	14.	5.
50	81490.	2.	427.	17.	0.	26.	0.	0.	11.	2.	26.	13.	2.
55	66915.	0.	538.	10.	0.	16.	6.	1.	5.	4.	26.	11.	6.
60	58631.	0.	697.	12.	0.	10.	3.	0.	10.	2.	13.	12.	5.
65	62664.	0.	1312.	11.	0.	11.	3.	3.	3.	1.	15.	5.	2.
70	47225.	0.	1655.	9.	0.	9.	2.	0.	3.	0.	4.	5.	1.
75	33464.	0.	2103.	2.	0.	9.	1.	0.	4.	0.	13.	8.	1.
80	17385.	0.	1853.	3.	0.	8.	3.	0.	5.	4.	1.	0.	0.
85	11081.	0.	2174.	1.	0.	3.	1.	0.	5.	0.	1.	0.	0.
TOTAL	1227890.	15602.	11763.	636.	10.	1150.	156.	67.	353.	121.	835.	424.	124.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	39.	195.	0.	21.	43.	45.	1.	6.	13.	15.
5	56.	213.	0.	28.	42.	35.	4.	9.	12.	2.
10	44.	145.	0.	27.	21.	25.	0.	9.	19.	7.
15	41.	206.	0.	29.	33.	25.	4.	3.	17.	8.
20	119.	632.	0.	60.	66.	100.	4.	14.	31.	18.
25	109.	543.	0.	77.	65.	71.	1.	10.	27.	11.
30	71.	292.	0.	31.	74.	54.	8.	9.	26.	6.
35	47.	240.	0.	28.	36.	45.	1.	8.	14.	5.
40	46.	142.	0.	20.	34.	21.	2.	4.	7.	3.
45	26.	101.	0.	13.	11.	13.	2.	4.	13.	8.
50	39.	111.	0.	15.	25.	25.	1.	3.	9.	2.
55	29.	103.	0.	12.	19.	17.	4.	3.	9.	0.
60	24.	75.	0.	8.	10.	11.	0.	2.	8.	0.
65	19.	87.	0.	2.	5.	7.	0.	2.	6.	2.
70	11.	53.	0.	12.	7.	2.	0.	1.	3.	0.
75	9.	29.	0.	0.	4.	2.	0.	0.	2.	1.
80	3.	16.	0.	3.	6.	3.	0.	0.	1.	1.
85	2.	12.	0.	1.	2.	3.	0.	0.	0.	0.
TOTAL	739.	3195.	0.	387.	503.	504.	32.	89.	217.	89.

APPENDIX A *Continued.*

REGION MOLISE

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM MOLISE TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	23056.	0.	49.	23.	0.	25.	4.	0.	6.	3.	24.	10.	0.
5	23697.	0.	13.	13.	0.	21.	3.	0.	3.	4.	21.	6.	0.
10	26490.	0.	10.	13.	0.	14.	2.	0.	2.	0.	16.	2.	0.
15	26696.	477.	16.	62.	2.	53.	4.	1.	5.	10.	35.	18.	2.
20	26101.	1388.	9.	87.	4.	90.	12.	2.	15.	10.	80.	43.	7.
25	24458.	1357.	17.	49.	0.	90.	13.	3.	12.	6.	49.	34.	6.
30	17657.	683.	12.	26.	0.	34.	5.	0.	10.	8.	26.	3.	0.
35	17786.	295.	29.	18.	0.	10.	0.	0.	2.	2.	17.	5.	0.
40	20431.	95.	40.	19.	0.	12.	5.	0.	2.	1.	12.	5.	0.
45	21273.	4.	61.	3.	0.	10.	4.	0.	7.	0.	1.	0.	0.
50	21186.	0.	97.	6.	0.	13.	3.	0.	5.	1.	4.	2.	1.
55	17468.	0.	146.	3.	0.	4.	4.	0.	1.	0.	10.	3.	5.
60	16151.	0.	189.	5.	0.	4.	4.	0.	1.	1.	6.	1.	0.
65	18059.	0.	396.	3.	0.	2.	0.	0.	0.	2.	8.	0.	0.
70	14138.	0.	547.	1.	0.	3.	0.	0.	0.	0.	13.	2.	0.
75	9633.	0.	549.	0.	0.	4.	2.	0.	0.	0.	3.	1.	0.
80	4649.	0.	513.	2.	0.	1.	0.	0.	0.	0.	1.	0.	0.
85	2904.	0.	601.	2.	0.	1.	0.	0.	0.	0.	1.	0.	0.
TOTAL	331833.	4299.	3294.	335.	6.	391.	65.	6.	71.	48.	327.	133.	21.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	6.	51.	43.	0.	42.	29.	1.	9.	7.	1.
5	4.	52.	26.	0.	35.	18.	6.	4.	4.	3.
10	3.	28.	25.	0.	26.	9.	2.	0.	11.	0.
15	5.	72.	42.	0.	36.	19.	0.	2.	6.	6.
20	27.	190.	96.	0.	85.	51.	2.	17.	7.	3.
25	18.	148.	81.	0.	111.	51.	2.	11.	9.	6.
30	7.	75.	50.	0.	66.	30.	4.	8.	4.	1.
35	7.	52.	36.	0.	44.	16.	4.	3.	4.	1.
40	5.	40.	14.	0.	33.	17.	2.	5.	3.	1.
45	2.	20.	11.	0.	28.	18.	0.	2.	1.	0.
50	3.	26.	17.	0.	34.	11.	0.	2.	4.	0.
55	3.	16.	13.	0.	25.	11.	0.	2.	1.	0.
60	1.	21.	15.	0.	11.	9.	0.	0.	2.	0.
65	3.	19.	14.	0.	9.	3.	1.	0.	4.	0.
70	0.	22.	7.	0.	7.	0.	0.	0.	0.	0.
75	1.	12.	12.	0.	6.	3.	0.	0.	0.	0.
80	0.	3.	4.	0.	2.	1.	0.	0.	0.	0.
85	0.	3.	1.	0.	0.	1.	0.	0.	0.	0.
TOTAL	95.	850.	507.	0.	404.	297.	24.	65.	67.	22.

REGION CAMPANIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM CAMPANIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	510466.	0.	2424.	287.	1.	550.	71.	21.	67.	31.	255.	249.	10.
5	508550.	0.	149.	278.	10.	501.	70.	8.	56.	36.	239.	275.	10.
10	524663.	23.	154.	256.	9.	500.	54.	8.	58.	35.	224.	245.	16.
15	491657.	9284.	212.	804.	8.	1064.	118.	56.	139.	123.	595.	479.	22.
20	434068.	26801.	276.	1583.	16.	2275.	245.	65.	321.	233.	939.	869.	54.
25	401036.	30140.	248.	866.	10.	1574.	216.	49.	285.	108.	507.	548.	34.
30	333889.	18554.	283.	384.	4.	739.	91.	14.	121.	53.	312.	311.	32.
35	312617.	8002.	390.	198.	11.	399.	65.	9.	62.	30.	181.	202.	27.
40	305743.	2538.	690.	152.	2.	272.	37.	8.	57.	21.	113.	157.	17.
45	312198.	227.	1184.	121.	1.	182.	26.	8.	31.	20.	77.	107.	8.
50	293787.	18.	1939.	79.	0.	173.	21.	0.	36.	29.	62.	87.	8.
55	225060.	0.	2456.	47.	1.	105.	20.	3.	18.	20.	44.	117.	15.
60	197225.	0.	3314.	62.	1.	73.	14.	0.	13.	23.	48.	54.	4.
65	198492.	0.	5330.	70.	0.	74.	15.	5.	8.	4.	28.	45.	8.
70	145819.	0.	6331.	39.	0.	44.	18.	3.	10.	6.	21.	39.	4.
75	96429.	0.	6806.	18.	0.	31.	6.	3.	4.	8.	12.	27.	3.
80	48335.	0.	5906.	12.	0.	17.	3.	0.	2.	2.	6.	12.	1.
85	28743.	0.	6123.	5.	0.	5.	5.	0.	0.	3.	3.	6.	2.
TOTAL	5378777.	95587.	44215.	5263.	74.	8578.	1099.	260.	1266.	775.	3726.	3799.	275.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	30.	528.	50.	50.	0.	187.	65.	124.	86.	35.
5	14.	498.	55.	43.	0.	168.	37.	115.	82.	32.
10	33.	403.	30.	67.	0.	128.	38.	94.	91.	30.
15	43.	504.	39.	54.	0.	117.	59.	93.	84.	29.
20	76.	1342.	109.	144.	0.	357.	149.	217.	227.	78.
25	53.	1325.	107.	138.	0.	284.	136.	221.	185.	86.
30	37.	740.	54.	78.	0.	228.	81.	177.	108.	55.
35	23.	437.	48.	67.	0.	155.	54.	101.	68.	24.
40	15.	350.	37.	42.	0.	111.	23.	85.	47.	24.
45	7.	251.	18.	55.	0.	78.	39.	54.	33.	12.
50	15.	197.	18.	43.	0.	49.	29.	44.	44.	7.
55	13.	156.	32.	30.	0.	59.	22.	36.	28.	13.
60	3.	122.	10.	7.	0.	45.	26.	36.	32.	1.
65	7.	129.	8.	23.	0.	42.	13.	19.	17.	1.
70	5.	92.	3.	7.	0.	24.	7.	15.	11.	1.
75	6.	59.	2.	9.	0.	20.	17.	6.	5.	1.
80	1.	33.	3.	3.	0.	12.	0.	12.	2.	1.
85	1.	15.	1.	2.	0.	3.	9.	0.	3.	0.
TOTAL	382.	7181.	524.	862.	0.	2067.	804.	1449.	1153.	430.

APPENDIX A *Continued.*

REGION PUGLIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM PUGLIA TO PIEMONTE	VALADSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	361140.	0.	1577.	362.	4.	528.	37.	6.	50.	42.	160.	117.	15.
5	353988.	0.	87.	337.	11.	446.	46.	3.	65.	45.	164.	115.	23.
10	372999.	3.	162.	305.	5.	472.	42.	10.	51.	31.	151.	94.	4.
15	343996.	7385.	207.	882.	1.	1072.	72.	17.	98.	80.	270.	186.	16.
20	310198.	18959.	171.	1393.	7.	2079.	159.	58.	310.	163.	629.	379.	29.
25	293895.	21348.	176.	767.	6.	1426.	115.	22.	249.	108.	389.	277.	39.
30	240251.	13128.	196.	361.	4.	633.	55.	15.	124.	45.	218.	136.	24.
35	227121.	5677.	241.	211.	2.	350.	38.	8.	74.	38.	127.	87.	25.
40	220824.	1650.	412.	158.	3.	257.	22.	1.	49.	16.	84.	65.	12.
45	219099.	116.	669.	117.	1.	187.	35.	4.	33.	16.	53.	64.	9.
50	205980.	3.	1082.	76.	0.	154.	27.	5.	21.	13.	35.	32.	9.
55	164414.	0.	1467.	70.	0.	101.	12.	1.	17.	12.	57.	29.	7.
60	141571.	0.	1957.	64.	0.	74.	10.	2.	11.	10.	23.	19.	4.
65	151161.	0.	3278.	63.	0.	67.	12.	1.	8.	4.	18.	21.	4.
70	111284.	0.	4024.	48.	0.	65.	7.	0.	10.	3.	9.	11.	4.
75	73663.	0.	4520.	30.	0.	36.	1.	1.	9.	1.	23.	7.	0.
80	39329.	0.	4400.	20.	0.	27.	4.	2.	6.	1.	8.	9.	2.
85	25459.	0.	5098.	12.	0.	10.	3.	0.	1.	1.	3.	2.	0.
TOTAL	3856252.	68271.	29724.	5276.	44.	7984.	699.	156.	1182.	631.	2401.	1666.	226.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	37.	190.	52.	39.	169.	0.	93.	70.	91.	29.
5	35.	228.	53.	37.	142.	0.	69.	47.	78.	25.
10	45.	161.	35.	24.	119.	0.	73.	54.	101.	26.
15	56.	191.	62.	34.	119.	0.	80.	45.	70.	11.
20	154.	590.	102.	75.	259.	0.	163.	126.	239.	59.
25	106.	544.	109.	84.	276.	0.	191.	134.	150.	55.
30	56.	316.	51.	36.	255.	0.	93.	74.	97.	27.
35	32.	203.	47.	27.	121.	0.	81.	67.	58.	12.
40	25.	119.	28.	20.	92.	0.	59.	34.	36.	17.
45	17.	103.	22.	12.	103.	0.	43.	35.	40.	8.
50	3.	62.	27.	13.	83.	0.	26.	24.	35.	5.
55	12.	58.	14.	14.	92.	0.	50.	20.	20.	6.
60	8.	44.	17.	7.	40.	0.	19.	21.	13.	4.
65	7.	44.	12.	11.	34.	0.	12.	13.	10.	6.
70	4.	41.	4.	4.	29.	0.	3.	0.	11.	1.
75	5.	37.	5.	2.	22.	0.	3.	3.	7.	2.
80	2.	15.	3.	4.	7.	0.	5.	4.	1.	0.
85	4.	10.	3.	4.	2.	0.	4.	2.	1.	0.
TOTAL	608.	2956.	646.	447.	1964.	0.	1072.	773.	1058.	293.

REGION BASILIC.

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM BASILIC. TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	52738.	0.	166.	75.	2.	76.	7.	0.	6.	4.	51.	43.	1.
5	52745.	0.	16.	62.	0.	77.	8.	0.	4.	1.	53.	26.	1.
10	56974.	0.	22.	54.	0.	90.	10.	2.	8.	4.	51.	37.	3.
15	56232.	801.	33.	384.	0.	252.	46.	5.	13.	6.	99.	136.	5.
20	50081.	2896.	30.	479.	8.	557.	45.	6.	48.	21.	178.	164.	8.
25	44227.	3007.	26.	181.	3.	324.	19.	2.	27.	11.	117.	90.	10.
30	31520.	1614.	23.	63.	0.	111.	15.	2.	9.	1.	45.	31.	1.
35	34210.	774.	44.	44.	0.	74.	4.	1.	14.	4.	45.	26.	5.
40	39017.	292.	75.	33.	0.	57.	8.	1.	12.	1.	49.	34.	4.
45	38221.	24.	104.	34.	0.	50.	5.	0.	3.	3.	32.	34.	1.
50	36253.	1.	199.	25.	0.	47.	5.	1.	3.	2.	24.	16.	1.
55	27471.	0.	195.	25.	0.	32.	0.	2.	2.	8.	14.	12.	2.
60	24346.	0.	308.	31.	0.	15.	3.	0.	3.	4.	3.	13.	0.
65	28467.	0.	614.	21.	0.	16.	9.	0.	2.	4.	7.	8.	2.
70	21356.	0.	789.	23.	0.	14.	3.	3.	0.	2.	3.	8.	0.
75	13879.	0.	939.	10.	0.	15.	1.	0.	2.	0.	5.	4.	0.
80	7199.	0.	894.	11.	0.	6.	3.	0.	1.	0.	5.	1.	0.
85	4121.	0.	802.	3.	0.	4.	0.	0.	1.	0.	0.	1.	0.
TOTAL	619057.	9409.	5279.	1558.	13.	1817.	191.	25.	158.	76.	781.	696.	44.

	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	4.	39.	1.	0.	52.	116.	0.	25.	10.	5.
5	3.	28.	2.	1.	57.	103.	0.	28.	9.	3.
10	4.	15.	1.	2.	43.	103.	0.	21.	5.	6.
15	15.	65.	3.	7.	72.	104.	0.	29.	4.	0.
20	9.	146.	14.	8.	145.	211.	0.	76.	17.	4.
25	11.	113.	9.	2.	158.	215.	0.	76.	20.	4.
30	3.	57.	5.	4.	98.	139.	0.	43.	21.	1.
35	5.	36.	6.	1.	61.	105.	0.	30.	7.	0.
40	5.	21.	1.	1.	57.	73.	0.	16.	6.	3.
45	1.	22.	3.	5.	35.	71.	0.	20.	8.	2.
50	2.	11.	0.	5.	43.	41.	0.	6.	5.	1.
55	0.	20.	5.	1.	33.	52.	0.	6.	0.	2.
60	0.	16.	0.	0.	19.	19.	0.	7.	0.	0.
65	3.	19.	1.	0.	21.	21.	0.	7.	8.	0.
70	0.	6.	0.	0.	9.	14.	0.	8.	0.	0.
75	0.	10.	0.	2.	12.	17.	0.	2.	0.	0.
80	0.	1.	0.	0.	9.	4.	0.	1.	0.	0.
85	0.	4.	0.	0.	2.	1.	0.	0.	0.	0.
TOTAL	65.	629.	51.	39.	926.	1409.	0.	401.	120.	31.

APPENDIX A *Continued.*

REGION CALABRIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM CALABRIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	175774.	0.	689.	327.	17.	449.	111.	4.	34.	15.	94.	41.	5.
5	181216.	0.	53.	328.	17.	380.	71.	6.	40.	13.	99.	56.	7.
10	196814.	12.	63.	319.	11.	436.	85.	8.	27.	11.	83.	73.	12.
15	194592.	3995.	91.	1083.	38.	1065.	197.	25.	52.	25.	232.	153.	12.
20	175717.	10273.	95.	1677.	85.	1891.	331.	55.	146.	61.	381.	250.	30.
25	153243.	9915.	101.	805.	35.	1162.	175.	24.	132.	45.	241.	202.	32.
30	113097.	5872.	121.	400.	14.	481.	89.	11.	85.	24.	102.	116.	14.
35	112090.	2581.	151.	201.	5.	263.	49.	2.	43.	15.	60.	47.	8.
40	118327.	864.	239.	167.	4.	185.	36.	6.	27.	9.	39.	45.	3.
45	118191.	85.	365.	146.	2.	168.	39.	1.	12.	6.	35.	33.	6.
50	111728.	5.	559.	78.	9.	128.	33.	2.	15.	7.	18.	25.	3.
55	87312.	0.	712.	82.	2.	90.	29.	8.	5.	3.	11.	17.	1.
60	81406.	0.	1013.	85.	1.	60.	16.	4.	12.	3.	21.	9.	1.
65	87321.	0.	1784.	47.	3.	50.	12.	0.	11.	3.	12.	10.	1.
70	66463.	0.	2304.	35.	5.	33.	11.	2.	7.	4.	7.	13.	0.
75	45090.	0.	2730.	27.	0.	25.	10.	0.	1.	1.	3.	12.	1.
80	24486.	0.	2677.	13.	0.	21.	5.	1.	0.	2.	1.	6.	0.
85	15046.	0.	3053.	4.	0.	8.	0.	1.	0.	0.	0.	4.	0.
TOTAL	2057913.	33602.	16800.	5824.	248.	6895.	1299.	160.	649.	247.	1439.	1148.	136.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	10.	180.	13.	4.	100.	84.	37.	0.	130.	12.
5	12.	147.	11.	2.	83.	78.	24.	0.	126.	9.
10	7.	123.	12.	0.	76.	71.	24.	0.	121.	11.
15	15.	231.	14.	7.	75.	40.	40.	0.	133.	6.
20	43.	542.	26.	6.	208.	150.	81.	0.	274.	21.
25	23.	502.	25.	4.	216.	126.	102.	0.	257.	14.
30	15.	293.	14.	6.	170.	97.	39.	0.	165.	10.
35	2.	149.	6.	2.	93.	62.	20.	0.	106.	4.
40	4.	112.	13.	0.	66.	49.	18.	0.	79.	8.
45	13.	95.	8.	4.	45.	29.	7.	0.	44.	4.
50	1.	78.	6.	4.	28.	34.	0.	0.	56.	9.
55	1.	69.	9.	0.	35.	35.	2.	0.	41.	4.
60	5.	46.	2.	0.	30.	9.	3.	0.	19.	0.
65	0.	48.	2.	0.	27.	11.	0.	0.	16.	1.
70	0.	32.	0.	0.	8.	7.	0.	0.	17.	1.
75	0.	19.	0.	0.	8.	5.	2.	0.	6.	4.
80	2.	13.	0.	0.	3.	6.	0.	0.	11.	1.
85	1.	11.	0.	0.	0.	3.	1.	0.	5.	0.
TOTAL	154.	2690.	161.	39.	1271.	896.	400.	0.	1428.	119.

REGION SICILIA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM SICILIA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	423053.	0.	1590.	566.	3.	713.	105.	18.	87.	37.	196.	215.	8.
5	423625.	0.	129.	506.	2.	739.	113.	10.	102.	51.	225.	195.	14.
10	435567.	14.	157.	525.	0.	684.	112.	14.	94.	29.	211.	211.	14.
15	427411.	10690.	205.	1262.	9.	1771.	214.	29.	99.	46.	330.	385.	18.
20	384980.	22922.	225.	1964.	26.	2408.	365.	56.	257.	125.	566.	556.	19.
25	367149.	23431.	228.	1220.	15.	1825.	243.	51.	290.	142.	395.	388.	27.
30	297902.	14125.	291.	641.	3.	938.	143.	17.	180.	68.	213.	208.	15.
35	290498.	6117.	353.	336.	0.	465.	74.	13.	82.	24.	150.	190.	15.
40	288400.	1858.	528.	230.	0.	381.	76.	7.	82.	22.	96.	115.	7.
45	291871.	139.	869.	181.	0.	275.	52.	3.	42.	23.	65.	100.	7.
50	281151.	2.	1475.	122.	2.	237.	41.	4.	37.	13.	45.	73.	7.
55	223015.	0.	1854.	99.	0.	147.	44.	1.	37.	11.	41.	57.	9.
60	209105.	0.	2859.	99.	1.	127.	26.	0.	26.	14.	23.	45.	3.
65	218386.	0.	4870.	90.	0.	124.	34.	0.	20.	9.	22.	33.	4.
70	164327.	0.	6128.	66.	0.	72.	21.	2.	8.	6.	13.	24.	1.
75	112119.	0.	7257.	59.	2.	69.	20.	1.	9.	2.	17.	20.	8.
80	59513.	0.	6889.	36.	0.	25.	8.	0.	5.	5.	2.	9.	0.
85	38108.	0.	7798.	8.	0.	10.	7.	1.	2.	0.	1.	2.	0.
TOTAL	4936180.	79298.	43705.	8010.	63.	10530.	1698.	227.	1451.	627.	2611.	2858.	176.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	24.	197.	12.	6.	88.	118.	12.	97.	0.	27.
5	11.	217.	17.	10.	84.	95.	15.	109.	0.	19.
10	17.	181.	18.	5.	75.	72.	13.	84.	0.	23.
15	26.	207.	13.	6.	99.	59.	9.	99.	0.	24.
20	79.	501.	45.	14.	275.	187.	27.	255.	0.	74.
25	56.	497.	24.	18.	221.	204.	26.	246.	0.	113.
30	30.	334.	16.	5.	140.	131.	18.	152.	0.	61.
35	18.	207.	22.	10.	89.	75.	19.	82.	0.	12.
40	9.	158.	9.	5.	44.	53.	5.	75.	0.	16.
45	20.	97.	9.	1.	53.	37.	1.	39.	0.	16.
50	11.	96.	10.	3.	27.	32.	5.	45.	0.	14.
55	8.	106.	7.	2.	31.	17.	3.	20.	0.	16.
60	8.	63.	2.	0.	24.	11.	1.	17.	0.	2.
65	6.	70.	8.	0.	21.	6.	1.	15.	0.	4.
70	4.	47.	3.	0.	7.	9.	1.	12.	0.	4.
75	4.	36.	3.	1.	7.	5.	0.	11.	0.	6.
80	0.	23.	1.	0.	6.	4.	0.	7.	0.	0.
85	0.	9.	1.	0.	3.	0.	0.	3.	0.	2.
TOTAL	331.	3046.	220.	86.	1294.	1115.	156.	1368.	0.	433.

APPENDIX A *Continued.*

REGION SARDEGNA

AGE	POPULATION	BIRTHS	DEATHS	MIGRATION FROM SARDEGNA TO PIEMONTE	VALAOSTA	LOMBARD.	LIGURIA	TRENTINO	VENETO	FRIULI	EMILIA	TOSCANA	UMBRIA
0	140860.	0.	466.	95.	0.	117.	43.	1.	36.	9.	46.	55.	10.
5	141409.	0.	58.	77.	0.	115.	33.	4.	26.	4.	61.	67.	10.
10	151215.	3.	55.	95.	2.	90.	42.	2.	28.	6.	47.	55.	2.
15	144225.	2302.	81.	412.	9.	334.	172.	2.	47.	20.	114.	169.	15.
20	135787.	6357.	91.	651.	9.	759.	251.	27.	103.	63.	196.	292.	31.
25	121765.	7737.	103.	320.	5.	424.	113.	8.	82.	27.	100.	143.	13.
30	99096.	5101.	97.	138.	4.	195.	52.	4.	40.	14.	59.	77.	18.
35	96046.	2795.	137.	82.	0.	122.	54.	5.	30.	7.	56.	61.	10.
40	87445.	948.	217.	57.	0.	51.	23.	1.	23.	4.	29.	38.	7.
45	86496.	90.	314.	42.	3.	48.	23.	1.	15.	7.	21.	26.	4.
50	80495.	3.	454.	23.	0.	30.	18.	1.	9.	2.	12.	18.	5.
55	64592.	0.	618.	25.	1.	30.	21.	1.	11.	6.	20.	21.	7.
60	58280.	0.	835.	12.	0.	26.	14.	1.	3.	4.	6.	8.	0.
65	61052.	0.	1337.	25.	0.	20.	10.	1.	5.	3.	3.	11.	0.
70	48024.	0.	1683.	12.	0.	9.	6.	0.	0.	2.	5.	9.	0.
75	32255.	0.	1895.	14.	0.	11.	3.	0.	2.	1.	4.	6.	1.
80	19186.	0.	1961.	9.	0.	7.	5.	0.	2.	0.	1.	2.	1.
85	13880.	0.	2525.	6.	0.	1.	1.	0.	0.	0.	0.	5.	0.
TOTAL	1582108.	25336.	12907.	2095.	33.	2389.	884.	59.	462.	179.	777.	1047.	134.

AGE	MARCHE	LAZIO	ABRUZZI	MOLISE	CAMPANIA	PUGLIA	BASILIC.	CALABRIA	SICILIA	SARDEGNA
0	8.	111.	8.	4.	42.	25.	1.	3.	52.	0.
5	20.	129.	8.	7.	26.	38.	0.	4.	36.	0.
10	6.	109.	13.	2.	35.	16.	3.	4.	39.	0.
15	14.	178.	8.	1.	21.	20.	2.	5.	30.	0.
20	25.	516.	20.	8.	73.	40.	2.	10.	60.	0.
25	23.	352.	14.	7.	73.	44.	5.	12.	82.	0.
30	13.	233.	11.	8.	51.	41.	5.	10.	67.	0.
35	16.	131.	7.	3.	40.	25.	0.	2.	33.	0.
40	16.	94.	9.	5.	19.	10.	0.	6.	16.	0.
45	10.	67.	3.	1.	22.	15.	3.	9.	20.	0.
50	8.	46.	4.	0.	20.	9.	0.	0.	13.	0.
55	1.	36.	5.	3.	6.	1.	0.	2.	3.	0.
60	0.	18.	2.	0.	6.	1.	0.	0.	3.	0.
65	1.	28.	1.	0.	0.	3.	0.	2.	2.	0.
70	4.	23.	2.	0.	1.	3.	0.	1.	1.	0.
75	2.	11.	0.	0.	0.	0.	0.	0.	3.	0.
80	0.	4.	0.	0.	0.	0.	0.	1.	1.	0.
85	2.	3.	0.	0.	0.	1.	0.	0.	0.	0.
TOTAL	169.	2087.	115.	49.	435.	292.	21.	71.	461.	0.

Appendix B

OBSERVED AGE-SPECIFIC RATES OF MORTALITY, FERTILITY, AND OUT-MIGRATION FOR THE 5 REGIONS: 1978

APPENDIX B

Observed age-specific rates of mortality, fertility, and out-migration.

Mortality rates.

age	n-west	n-east	central	south	islands
0	0.003002	0.002629	0.002796	0.004280	0.003646
5	0.000268	0.000342	0.000277	0.000285	0.000331
10	0.000300	0.000319	0.000277	0.000337	0.000361
15	0.000665	0.000787	0.000594	0.000505	0.000500
20	0.000776	0.000882	0.000622	0.000579	0.000607
25	0.000692	0.000825	0.000616	0.000625	0.000677
30	0.000840	0.000975	0.000795	0.000860	0.000977
35	0.001298	0.001450	0.001139	0.001197	0.001268
40	0.002350	0.002423	0.001805	0.002033	0.001982
45	0.004157	0.004179	0.003121	0.003354	0.003127
50	0.007201	0.006795	0.005448	0.005754	0.005334
55	0.011181	0.010768	0.009020	0.009367	0.008595
60	0.015774	0.015349	0.013001	0.014399	0.013815
65	0.025743	0.024049	0.021699	0.023279	0.022212
70	0.041366	0.039605	0.036479	0.038520	0.036783
75	0.067302	0.063615	0.059192	0.064846	0.063391
80	0.116422	0.107612	0.103707	0.114887	0.112200
85	0.205660	0.194418	0.189520	0.204352	0.198565
gross	2.524985	2.385108	2.250549	2.447191	2.371860
crude	0.010652	0.010326	0.009302	0.008245	0.008685
m.age	79.1969	79.0459	79.5368	79.4028	79.5088

Fertility rates.

age	n-west	n-east	central	south	islands
0	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.
10	0.000009	0.000006	0.000008	0.000030	0.000029
15	0.012506	0.013840	0.013332	0.019480	0.022728
20	0.045221	0.043331	0.048277	0.060110	0.056223
25	0.051526	0.049019	0.054830	0.070445	0.063749
30	0.030075	0.029679	0.032504	0.052400	0.045428
35	0.010946	0.012221	0.011912	0.023577	0.023056
40	0.002886	0.003343	0.003103	0.007340	0.007466
45	0.000216	0.000240	0.000233	0.000606	0.000605
50	0.000014	0.000009	0.000011	0.000039	0.000014
55	0.	0.	0.	0.	0.
60	0.	0.	0.	0.	0.
65	0.	0.	0.	0.	0.
70	0.	0.	0.	0.	0.
75	0.	0.	0.	0.	0.
80	0.	0.	0.	0.	0.
85	0.	0.	0.	0.	0.
gross	0.766993	0.758432	0.821051	1.170134	1.111490
crude	0.010398	0.010416	0.011192	0.016833	0.016052
m.age	27.2164	27.3063	27.2460	28.0343	27.8973

Out-migration rates.

	migration from n-west to					
age	total	n-west	n-east	central	south	islands
0	0.007491	0.	0.001442	0.001235	0.003030	0.001784
5	0.006418	0.	0.001194	0.001227	0.002449	0.001547
10	0.005516	0.	0.001075	0.000957	0.002040	0.001445
15	0.005926	0.	0.001001	0.000768	0.002622	0.001535
20	0.013320	0.	0.002693	0.002098	0.005540	0.002989
25	0.011704	0.	0.002255	0.002148	0.004748	0.002552
30	0.009424	0.	0.001939	0.001913	0.003608	0.001965
35	0.006175	0.	0.001534	0.001364	0.002068	0.001209
40	0.004469	0.	0.001254	0.000957	0.001426	0.000832
45	0.003548	0.	0.000971	0.000686	0.001214	0.000677
50	0.003551	0.	0.000962	0.000694	0.001235	0.000659
55	0.004473	0.	0.001301	0.000804	0.001519	0.000849
60	0.003531	0.	0.001080	0.000656	0.001111	0.000684
65	0.002522	0.	0.000722	0.000435	0.000915	0.000450
70	0.002045	0.	0.000641	0.000367	0.000640	0.000397
75	0.002029	0.	0.000659	0.000415	0.000599	0.000355
80	0.001716	0.	0.000613	0.000387	0.000434	0.000283
85	0.001673	0.	0.000734	0.000469	0.000273	0.000196
gross	0.477648	0.	0.110346	0.087906	0.177353	0.102042
crude	0.006020	0.	0.001335	0.001099	0.002278	0.001309
m.age	33.3436	0.	38.0602	35.0005	31.0547	30.7941

	migration from n-east to					
age	total	n-west	n-east	central	south	islands
0	0.003465	0.001185	0.	0.000928	0.000885	0.000466
5	0.002789	0.000997	0.	0.000734	0.000687	0.000371
10	0.002526	0.000904	0.	0.000636	0.000609	0.000378
15	0.002844	0.001151	0.	0.000524	0.000790	0.000380
20	0.007577	0.003118	0.	0.001695	0.001917	0.000847
25	0.006732	0.002642	0.	0.001776	0.001586	0.000727
30	0.005170	0.001965	0.	0.001504	0.001106	0.000595
35	0.003591	0.001394	0.	0.001095	0.000735	0.000368
40	0.002685	0.001099	0.	0.000745	0.000515	0.000325
45	0.002137	0.000869	0.	0.000596	0.000424	0.000247
50	0.001693	0.000738	0.	0.000485	0.000298	0.000171
55	0.001793	0.000773	0.	0.000470	0.000392	0.000159
60	0.001408	0.000663	0.	0.000394	0.000223	0.000127
65	0.001335	0.000640	0.	0.000329	0.000273	0.000093
70	0.001177	0.000673	0.	0.000265	0.000143	0.000096
75	0.001451	0.000748	0.	0.000409	0.000210	0.000085
80	0.001737	0.001011	0.	0.000488	0.000183	0.000054
85	0.001768	0.001058	0.	0.000397	0.000132	0.000180
gross	0.259392	0.108130	0.	0.067362	0.055539	0.028361
crude	0.003185	0.001277	0.	0.000828	0.000717	0.000363
m.age	35.6745	38.8109	0.	36.1601	31.0535	31.6122

APPENDIX B *Continued.*

	migration from central to					
age	total	n-west	n-east	central	south	islands
0	0.004176	0.001033	0.000719	0.	0.001725	0.000700
5	0.003537	0.000944	0.000622	0.	0.001458	0.000513
10	0.003220	0.000821	0.000539	0.	0.001334	0.000526
15	0.003515	0.001058	0.000642	0.	0.001294	0.000522
20	0.010115	0.003063	0.002091	0.	0.003648	0.001314
25	0.008944	0.002599	0.001697	0.	0.003455	0.001193
30	0.006182	0.001676	0.001255	0.	0.002412	0.000838
35	0.004337	0.001234	0.000840	0.	0.001654	0.000609
40	0.003025	0.000799	0.000602	0.	0.001246	0.000378
45	0.002604	0.000664	0.000479	0.	0.001067	0.000395
50	0.002165	0.000524	0.000403	0.	0.000951	0.000287
55	0.002505	0.000578	0.000499	0.	0.001083	0.000344
60	0.002102	0.000491	0.000487	0.	0.000806	0.000319
65	0.001934	0.000546	0.000376	0.	0.000764	0.000247
70	0.001595	0.000393	0.000320	0.	0.000625	0.000257
75	0.001735	0.000475	0.000376	0.	0.000622	0.000261
80	0.001544	0.000464	0.000431	0.	0.000411	0.000239
85	0.001729	0.000624	0.000284	0.	0.000689	0.000131
gross	0.324812	0.089935	0.063308	0.	0.126204	0.045365
crude	0.004038	0.001112	0.000778	0.	0.001580	0.000568
m.age	35.0413	35.1128	36.1075	0.	34.7657	34.1780

	migration from south to					
age	total	n-west	n-east	central	south	islands
0	0.005222	0.002547	0.000779	0.001535	0.	0.000359
5	0.004873	0.002311	0.000756	0.001488	0.	0.000318
10	0.004308	0.002156	0.000638	0.001181	0.	0.000333
15	0.010234	0.006155	0.001674	0.002095	0.	0.000310
20	0.022315	0.012382	0.003693	0.005341	0.	0.000899
25	0.016472	0.008148	0.002677	0.004828	0.	0.000818
30	0.010198	0.004559	0.001681	0.003313	0.	0.000645
35	0.006302	0.002643	0.001053	0.002216	0.	0.000390
40	0.004543	0.001923	0.000725	0.001596	0.	0.000299
45	0.003429	0.001500	0.000490	0.001194	0.	0.000245
50	0.002884	0.001226	0.000426	0.000995	0.	0.000236
55	0.002983	0.001120	0.000455	0.001198	0.	0.000211
60	0.002563	0.001053	0.000410	0.000947	0.	0.000152
65	0.002193	0.000895	0.000269	0.000899	0.	0.000130
70	0.002159	0.000908	0.000271	0.000869	0.	0.000111
75	0.002227	0.000845	0.000349	0.000922	0.	0.000110
80	0.002440	0.001125	0.000340	0.000849	0.	0.000127
85	0.001992	0.000767	0.000229	0.000893	0.	0.000103
gross	0.536679	0.261322	0.084579	0.161795	0.	0.028984
crude	0.007333	0.003683	0.001170	0.002093	0.	0.000388
m.age	32.5815	30.7583	31.7395	35.7956	0.	33.5357

age	migration from islands to total	n-west	n-east	central	south	islands
0	0.005526	0.002912	0.000763	0.001114	0.000738	0.
5	0.005564	0.002805	0.000855	0.001173	0.000731	0.
10	0.004969	0.002642	0.000735	0.001014	0.000579	0.
15	0.010013	0.006443	0.001202	0.001770	0.000598	0.
20	0.020794	0.012353	0.002671	0.003935	0.001836	0.
25	0.015653	0.008519	0.002240	0.003066	0.001829	0.
30	0.010632	0.005325	0.001499	0.002327	0.001481	0.
35	0.006576	0.002983	0.000949	0.001676	0.000968	0.
40	0.004696	0.002176	0.000700	0.001181	0.000639	0.
45	0.003502	0.001649	0.000468	0.000875	0.000510	0.
50	0.002796	0.001308	0.000329	0.000730	0.000429	0.
55	0.002889	0.001276	0.000431	0.000845	0.000337	0.
60	0.002210	0.001141	0.000288	0.000542	0.000239	0.
65	0.002061	0.001084	0.000225	0.000548	0.000204	0.
70	0.001766	0.000876	0.000170	0.000537	0.000184	0.
75	0.002265	0.001233	0.000249	0.000596	0.000187	0.
80	0.002071	0.001144	0.000191	0.000496	0.000241	0.
85	0.001270	0.000635	0.000077	0.000404	0.000154	0.
gross	0.526274	0.282514	0.070201	0.114143	0.059416	0.
crude	0.007237	0.003943	0.000981	0.001512	0.000801	0.
m.age	31.5902	30.7510	30.3307	34.0547	32.3340	0.

Appendix C

MULTIREGIONAL LIFE TABLE FOR THE 5 REGIONS: 1978

C.1 Expected Numbers of Survivors at Exact Age x
C.2 Life Expectancy by Region of Birth

APPENDIX C.1 Expected numbers of survivors at exact age x.

age	initial region of cohort	n-west				
***		**********				
	total	n-west	n-east	central	south	islands
0	100000.	100000.	0.	0.	0.	0.
5	98505.	94906.	698.	601.	1448.	853.
10	98373.	91834.	1255.	1182.	2554.	1547.
15	98224.	89270.	1741.	1623.	3427.	2164.
20	97903.	86593.	2198.	1991.	4396.	2724.
25	97532.	81285.	3377.	2967.	6215.	3688.
30	97196.	76932.	4291.	3916.	7629.	4429.
35	96783.	73464.	5008.	4709.	8648.	4954.
40	96162.	71026.	5521.	5236.	9146.	5233.
45	95075.	68841.	5883.	5566.	9405.	5380.
50	93213.	66397.	6072.	5735.	9551.	5459.
55	90097.	63050.	6164.	5822.	9587.	5475.
60	85424.	58425.	6219.	5825.	9511.	5444.
65	79143.	53153.	6047.	5646.	9070.	5227.
70	69904.	46230.	5520.	5176.	8229.	4749.
75	57135.	37250.	4639.	4393.	6851.	4001.
80	40996.	26305.	3450.	3329.	4982.	2930.
85	22797.	14352.	2029.	1996.	2765.	1655.

age	initial region of cohort	n-east				
***		**********				
	total	n-west	n-east	central	south	islands
0	100000.	0.	100000.	0.	0.	0.
5	98691.	574.	97003.	453.	433.	228.
10	98523.	1041.	95507.	806.	763.	406.
15	98367.	1454.	94172.	1104.	1051.	585.
20	97985.	1999.	92504.	1349.	1387.	746.
25	97562.	3415.	88770.	2118.	2167.	1091.
30	97169.	4507.	85589.	2894.	2795.	1383.
35	96704.	5222.	83102.	3531.	3233.	1618.
40	96021.	5683.	81115.	3966.	3504.	1754.
45	94891.	5995.	79137.	4233.	3665.	1861.
50	92977.	6157.	76729.	4393.	3769.	1928.
55	89921.	6151.	73589.	4454.	3781.	1945.
60	85278.	5998.	69170.	4421.	3762.	1928.
65	79043.	5694.	63658.	4266.	3577.	1849.
70	70108.	5155.	56092.	3913.	3265.	1682.
75	57523.	4325.	45736.	3318.	2721.	1423.
80	41722.	3194.	32959.	2530.	1993.	1046.
85	23916.	1852.	18820.	1537.	1116.	592.

age	initial region of cohort central					
***	**********					
	total	n-west	n-east	central	south	islands
0	100000.	0.	0.	100000.	0.	0.
5	98608.	503.	352.	96580.	833.	340.
10	98471.	953.	652.	94773.	1512.	580.
15	98333.	1338.	909.	93152.	2113.	821.
20	98042.	1881.	1219.	91300.	2611.	1031.
25	97734.	3368.	2190.	86677.	3959.	1539.
30	97428.	4520.	2938.	82828.	5163.	1980.
35	97034.	5169.	3461.	80172.	5959.	2273.
40	96470.	5599.	3787.	78150.	6461.	2472.
45	95566.	5826.	3989.	76394.	6783.	2574.
50	94027.	5940.	4094.	74321.	7002.	2669.
55	91413.	5889.	4114.	71619.	7094.	2696.
60	87278.	5710.	4090.	67692.	7090.	2696.
65	81605.	5399.	3960.	62830.	6802.	2614.
70	73011.	4889.	3621.	55871.	6230.	2401.
75	60603.	4064.	3046.	46199.	5242.	2051.
80	44658.	2979.	2278.	34019.	3856.	1526.
85	25949.	1694.	1356.	19865.	2156.	877.

age	initial region of cohort south					
***	**********					
	total	n-west	n-east	central	south	islands
0	100000.	0.	0.	0.	100000.	0.
5	97891.	1217.	381.	742.	95373.	179.
10	97752.	2258.	743.	1436.	92976.	338.
15	97588.	3187.	1044.	1967.	90884.	506.
20	97336.	5803.	1794.	2871.	86212.	656.
25	97041.	10443.	3355.	4967.	77189.	1088.
30	96731.	12924.	4398.	6660.	71264.	1485.
35	96316.	13969.	5025.	7744.	67787.	1790.
40	95729.	14434.	5396.	8403.	65530.	1966.
45	94737.	14645.	5614.	8812.	63585.	2081.
50	93093.	14623.	5686.	9007.	61616.	2161.
55	90345.	14275.	5666.	9036.	59159.	2209.
60	86072.	13569.	5562.	8941.	55779.	2222.
65	80044.	12638.	5311.	8592.	51353.	2149.
70	71154.	11219.	4796.	7876.	45294.	1970.
75	58582.	9224.	4001.	6697.	36986.	1674.
80	42324.	6644.	2962.	5078.	26404.	1237.
85	23659.	3723.	1738.	3045.	14445.	707.

APPENDIX C.1 *Continued.*

age	initial region of cohort					islands
***	**********					
	total	n-west	n-east	central	south	islands
0	100000.	0.	0.	0.	0.	100000.
5	98197.	1392.	374.	541.	366.	95525.
10	98036.	2658.	784.	1097.	728.	92769.
15	97861.	3792.	1130.	1561.	1018.	90359.
20	97609.	6514.	1676.	2337.	1305.	85778.
25	97303.	11117.	2852.	3930.	2177.	77227.
30	96973.	13721.	3772.	5079.	3032.	71369.
35	96517.	14996.	4369.	5919.	3708.	67524.
40	95906.	15536.	4733.	6478.	4108.	65052.
45	94925.	15792.	4967.	6822.	4339.	63006.
50	93341.	15773.	5057.	6991.	4491.	61029.
55	90692.	15392.	5040.	7031.	4561.	58667.
60	86601.	14645.	4974.	6969.	4538.	55475.
65	80663.	13641.	4746.	6675.	4337.	51264.
70	71916.	12132.	4291.	6106.	3948.	45437.
75	59500.	9957.	3574.	5184.	3305.	37479.
80	43137.	7214.	2644.	3929.	2418.	26931.
85	24268.	4039.	1546.	2352.	1357.	14973.

APPENDIX C.2 Life expectancy by region of birth.

age	initial region of cohort n-west					
***	**********					
	total	n-west	n-east	central	south	islands
0	73.77956	57.80064	3.56119	3.34286	5.73691	3.33796
5	68.81694	52.92798	3.54375	3.32784	5.70073	3.31663
10	63.89499	48.25948	3.49493	3.28326	5.60070	3.25663
15	58.98008	43.73186	3.42004	3.21313	5.45119	3.16385
20	54.07690	39.33529	3.32158	3.12278	5.25560	3.04165
25	49.19104	35.13837	3.18220	2.99882	4.99031	2.88134
30	44.32283	31.18296	2.99050	2.82674	4.64421	2.67842
35	39.47335	27.42306	2.75802	2.61112	4.23730	2.44385
40	34.64974	23.81080	2.49479	2.36251	3.79245	2.18920
45	29.86882	20.31412	2.20969	2.09246	3.32867	1.92388
50	25.16161	16.93317	1.91083	1.80993	2.85476	1.65291
55	20.57885	13.69701	1.60493	1.52102	2.37633	1.37956
60	16.19081	10.66015	1.29535	1.22984	1.89888	1.10659
65	12.07664	7.87070	0.98871	0.94307	1.43436	0.83981
70	8.35048	5.38612	0.69955	0.67252	1.00189	0.59040
75	5.17451	3.29913	0.44557	0.43327	0.62488	0.37165
80	2.72124	1.71026	0.24334	0.24022	0.32905	0.19838
85	1.12643	0.69384	0.10636	0.10710	0.13539	0.08375

age	initial region of cohort n-east					
***	**********					
	total	n-west	n-east	central	south	islands
0	73.94547	3.46929	64.67185	2.50888	2.17629	1.11915
5	68.97818	3.45494	59.74677	2.49754	2.16548	1.11344
10	64.04781	3.41457	54.93402	2.46607	2.13558	1.09757
15	59.12557	3.35220	50.19207	2.41831	2.09022	1.07277
20	54.21678	3.26588	45.52518	2.35698	2.02925	1.03949
25	49.32811	3.13053	40.99333	2.27029	1.94039	0.99356
30	44.45985	2.93249	36.63435	2.14498	1.81633	0.93170
35	39.61303	2.68927	32.41710	1.98436	1.66562	0.85668
40	34.79489	2.41664	28.31168	1.79695	1.49722	0.77240
45	30.02209	2.12469	24.30537	1.59198	1.31800	0.68203
50	25.32541	1.82089	20.40872	1.37634	1.13216	0.58730
55	20.75297	1.51319	16.65075	1.15516	0.94340	0.49047
60	16.37298	1.20947	13.08178	0.93326	0.75482	0.39365
65	12.26493	0.91717	9.76110	0.71607	0.57136	0.29923
70	8.53615	0.64592	6.76736	0.51159	0.40031	0.21097
75	5.34538	0.40891	4.22166	0.33079	0.25067	0.13335
80	2.86425	0.22094	2.25428	0.18458	0.13282	0.07163
85	1.22329	0.09479	0.95982	0.08290	0.05511	0.03067

APPENDIX C. 2 *Continued.*

age	initial region of cohort central					
***	**********					
	total	n-west	n-east	central	south	islands
0	75.01224	3.32951	2.34001	63.66515	4.09761	1.57996
5	70.04704	3.31694	2.33121	58.75065	4.07678	1.57146
10	65.12006	3.28053	2.30610	53.96682	4.01815	1.54846
15	60.19995	3.22326	2.26707	49.26868	3.92752	1.51342
20	55.29056	3.14278	2.21387	44.65738	3.80943	1.46710
25	50.39617	3.01154	2.12863	40.20797	3.64520	1.40284
30	45.51712	2.81433	2.00042	35.97075	3.41716	1.31486
35	40.65556	2.57210	1.84045	31.89534	3.13912	1.20855
40	35.81797	2.30289	1.65925	27.93728	2.82862	1.08992
45	31.01107	2.01725	1.46484	24.07369	2.49751	0.96378
50	26.27727	1.72310	1.26277	20.30582	2.15286	0.83272
55	21.64128	1.42736	1.05757	16.65711	1.80045	0.69860
60	17.17400	1.13739	0.85245	13.17453	1.44585	0.56379
65	12.95191	0.85968	0.65120	9.91147	1.09854	0.43103
70	9.08650	0.60249	0.46168	6.94395	0.77273	0.30567
75	5.74615	0.37866	0.29501	4.39222	0.48592	0.19433
80	3.11463	0.20258	0.16191	2.38678	0.25847	0.10489
85	1.34945	0.08574	0.07108	1.03967	0.10816	0.04480

age	initial region of cohort south					
***	**********					
	total	n-west	n-east	central	south	islands
0	73.90205	8.32996	3.22044	5.18073	55.93161	1.23932
5	68.95477	8.29954	3.21092	5.16217	51.04729	1.23485
10	64.06370	8.21267	3.18282	5.10772	46.33856	1.22193
15	59.18019	8.07654	3.13814	5.02263	41.74205	1.20083
20	54.30708	7.85180	3.06718	4.90167	37.31464	1.17178
25	49.44765	7.44565	2.93846	4.70574	33.22963	1.12819
30	44.60335	6.86146	2.74463	4.41507	29.51831	1.06387
35	39.77719	6.18912	2.50906	4.05496	26.04203	0.98201
40	34.97607	5.47903	2.24853	3.65130	22.70910	0.88811
45	30.21441	4.75205	1.97327	3.22094	19.48123	0.78692
50	25.51865	4.02034	1.69076	2.77548	16.35122	0.68086
55	20.93270	3.29789	1.40696	2.32441	13.33185	0.57159
60	16.52228	2.60178	1.12628	1.87500	10.45839	0.46082
65	12.36938	1.94660	0.85447	1.43669	7.78008	0.35155
70	8.58944	1.35018	0.60180	1.02499	5.36391	0.24856
75	5.34604	0.83911	0.38189	0.66066	3.30692	0.15747
80	2.82340	0.44242	0.20782	0.36628	1.72216	0.08471
85	1.17383	0.18324	0.09033	0.16321	0.70093	0.03612

age	initial region of cohort islands					
***	**********					
	total	n-west	n-east	central	south	islands
0	74.28605	9.01268	2.86795	4.01688	2.51995	55.86857
5	69.33112	8.97789	2.85861	4.00335	2.51081	50.98045
10	64.42529	8.87666	2.82967	3.96239	2.48347	46.27311
15	59.52788	8.71542	2.78182	3.89593	2.43981	41.69490
20	54.64113	8.45777	2.71168	3.79848	2.38174	37.29147
25	49.76834	8.01699	2.59849	3.64182	2.29470	33.21634
30	44.91145	7.39604	2.43289	3.41659	2.16448	29.50145
35	40.07421	6.67813	2.22936	3.14162	1.99598	26.02913
40	35.26365	5.91484	2.00180	2.83169	1.80058	22.71473
45	30.49286	5.13165	1.75931	2.49920	1.58940	19.51330
50	25.78619	4.34252	1.50871	2.15388	1.36865	16.41244
55	21.18536	3.56339	1.25626	1.80332	1.14235	13.42004
60	16.75303	2.81246	1.00589	1.45332	0.91486	10.56649
65	12.57141	2.10531	0.76287	1.11223	0.69298	7.89802
70	8.75694	1.46098	0.53694	0.79269	0.48583	5.48049
75	5.47155	0.90874	0.34031	0.51043	0.30450	3.40757
80	2.90563	0.47946	0.18486	0.28259	0.16143	1.79730
85	1.22051	0.19813	0.08010	0.12555	0.06705	0.74968

Appendix D

MULTIREGIONAL POPULATION PROJECTIONS AND STABLE EQUIVALENT POPULATION FOR THE 5 REGIONS: 1978–2028

LEGEND

m.ag: mean age of population
sha: percentage of population in each region
lam: intrinsic growth ratio
r: intrinsic growth rate

APPENDIX D

Multiregional population projections.

year 1978

population

age	total	n-west	n-east	central	south	islands
0	4103441.	976380.	651686.	703969.	1207493.	563913.
5	4403344.	1105671.	748364.	775230.	1209045.	565034.
10	4686875.	1175095.	809930.	829226.	1285842.	586782.
15	4321255.	1033267.	745683.	762994.	1207675.	571636.
20	3959700.	953676.	686047.	711691.	1087519.	520767.
25	4065161.	1081716.	731272.	756077.	1007182.	488914.
30	3709283.	1076986.	707908.	719382.	808009.	396998.
35	3813901.	1169426.	730900.	750985.	776046.	386544.
40	3657557.	1092975.	676078.	730609.	782050.	375845.
45	3663134.	1081437.	679042.	735045.	789243.	378367.
50	3561739.	1014200.	700531.	734938.	750424.	361646.
55	2857688.	802415.	572156.	606870.	588640.	287607.
60	2540823.	734352.	502122.	517634.	519330.	267385.
65	2711161.	793423.	546672.	545464.	546164.	279438.
70	2021829.	601994.	404289.	396910.	406285.	212351.
75	1361788.	402262.	271491.	271523.	272138.	144374.
80	730530.	212133.	147419.	150896.	141383.	78699.
85	431076.	117174.	83166.	91394.	87354.	51988.
total	56600288.	15424582.	10394756.	10790837.	13471822.	6518288.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	7.2499	6.3300	6.2694	6.5238	8.9631	8.6512
5	7.7797	7.1682	7.1994	7.1842	8.9746	8.6684
10	8.2807	7.6183	7.7917	7.6845	9.5447	9.0021
15	7.6347	6.6988	7.1736	7.0708	8.9645	8.7697
20	6.9959	6.1828	6.5999	6.5953	8.0725	7.9893
25	7.1822	7.0129	7.0350	7.0067	7.4762	7.5007
30	6.5535	6.9823	6.8102	6.6666	5.9978	6.0905
35	6.7383	7.5816	7.0314	6.9595	5.7605	5.9301
40	6.4621	7.0859	6.5040	6.7706	5.8051	5.7660
45	6.4719	7.0111	6.5325	6.8118	5.8585	5.8047
50	6.2928	6.5752	6.7393	6.8108	5.5703	5.5482
55	5.0489	5.2022	5.5043	5.6239	4.3694	4.4123
60	4.4891	4.7609	4.8305	4.7970	3.8549	4.1021
65	4.7900	5.1439	5.2591	5.0549	4.0541	4.2870
70	3.5721	3.9028	3.8894	3.6782	3.0158	3.2578
75	2.4060	2.6079	2.6118	2.5162	2.0201	2.2149
80	1.2907	1.3753	1.4182	1.3984	1.0495	1.2074
85	0.7616	0.7597	0.8001	0.8470	0.6484	0.7976
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	35.5938	37.1352	37.0490	36.9313	32.6586	33.4774
sha	100.0000	27.2518	18.3652	19.0650	23.8017	11.5164

year 1983

population

age	total	n-west	n-east	central	south	islands
0	3651349.	800288.	548795.	612428.	1156665.	533173.
5	4065854.	964246.	652273.	705903.	1187030.	556402.
10	4396616.	1099345.	752113.	780729.	1201585.	562844.
15	4676031.	1186075.	815495.	835287.	1260852.	578322.
20	4307236.	1074695.	759007.	775743.	1149159.	548631.
25	3946135.	990838.	700316.	727431.	1029734.	497816.
30	4049336.	1085383.	738472.	768426.	979786.	477268.
35	3689436.	1063386.	709092.	725359.	798921.	392678.
40	3781406.	1150124.	728213.	751839.	768283.	382946.
45	3604787.	1069928.	668338.	725450.	770140.	370931.
50	3573558.	1045469.	663525.	722049.	771522.	370993.
55	3420468.	960561.	673992.	711228.	724214.	350473.
60	2688016.	743519.	539414.	575740.	556067.	273276.
65	2310943.	659044.	457486.	475765.	473529.	245119.
70	2323962.	670986.	468552.	473371.	469138.	241914.
75	1572897.	461305.	314923.	314925.	315340.	166404.
80	894811.	259255.	180124.	184198.	176562.	94672.
85	530731.	146780.	110716.	118265.	98028.	56941.
total	57483568.	15431228.	10480846.	10984135.	13886556.	6700805.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.3520	5.1862	5.2362	5.5756	8.3294	7.9568
5	7.0731	6.2487	6.2235	6.4266	8.5481	8.3035
10	7.6485	7.1242	7.1761	7.1078	8.6529	8.3996
15	8.1346	7.6862	7.7808	7.6045	9.0797	8.6306
20	7.4930	6.9644	7.2419	7.0624	8.2753	8.1875
25	6.8648	6.4210	6.6819	6.6226	7.4153	7.4292
30	7.0443	7.0337	7.0459	6.9958	7.0556	7.1225
35	6.4182	6.8911	6.7656	6.6037	5.7532	5.8602
40	6.5782	7.4532	6.9480	6.8448	5.5326	5.7149
45	6.2710	6.9335	6.3768	6.6045	5.5459	5.5356
50	6.2167	6.7750	6.3308	6.5736	5.5559	5.5365
55	5.9503	6.2248	6.4307	6.4750	5.2152	5.2303
60	4.6761	4.8183	5.1467	5.2416	4.0044	4.0783
65	4.0202	4.2708	4.3650	4.3314	3.4100	3.6581
70	4.0428	4.3482	4.4706	4.3096	3.3784	3.6102
75	2.7363	2.9894	3.0048	2.8671	2.2708	2.4833
80	1.5566	1.6801	1.7186	1.6769	1.2715	1.4128
85	0.9233	0.9512	1.0564	1.0767	0.7059	0.8498
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.age	36.5785	38.2158	38.2285	38.0930	33.4531	34.2212
sha	100.0000	26.8446	18.2328	19.1083	24.1574	11.6569
lam	1.015606	1.000431	1.008282	1.017913	1.030785	1.028001
r	0.003097	0.000086	0.001650	0.003551	0.006064	0.005523

APPENDIX D *Continued.*

year 1988

population

age	total	n-west	n-east	central	south	islands
0	3816402.	828298.	570489.	637053.	1222113.	558449.
5	3617552.	793542.	549975.	614764.	1134463.	524807.
10	4059630.	961150.	656344.	711374.	1177136.	553026.
15	4386448.	1109888.	757482.	786373.	1178311.	554394.
20	4660790.	1224049.	829368.	847924.	1202351.	557098.
25	4292444.	1110449.	773762.	792171.	1090389.	525673.
30	3930778.	999815.	707743.	740341.	998451.	484428.
35	4027692.	1076637.	740780.	776267.	964129.	469879.
40	3658065.	1047870.	706263.	726415.	789242.	388275.
45	3726701.	1125322.	719353.	746471.	757451.	378104.
50	3516607.	1034230.	653078.	712571.	752988.	363740.
55	3431831.	989854.	639073.	699109.	744336.	359460.
60	3217400.	890116.	635581.	675037.	683771.	332895.
65	2445220.	667625.	491298.	528810.	506897.	250591.
70	1981247.	557527.	392153.	412795.	406648.	212123.
75	1808380.	514347.	364928.	375427.	364102.	189576.
80	1033597.	297337.	208927.	213631.	204583.	109119.
85	649964.	179397.	135284.	144384.	122386.	68513.
total	58260752.	15407452.	10531880.	11140919.	14300348.	6880150.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.5506	5.3760	5.4168	5.7181	8.5460	8.1168
5	6.2092	5.1504	5.2220	5.5181	7.9331	7.6278
10	6.9680	6.2382	6.2320	6.3852	8.2357	8.0380
15	7.5290	7.2036	7.1923	7.0584	8.2397	8.0579
20	7.9999	7.9445	7.8748	7.6109	8.4078	8.0972
25	7.3676	7.2072	7.3469	7.1105	7.6249	7.6404
30	6.7469	6.4892	6.7200	6.6452	6.9820	7.0410
35	6.9132	6.9878	7.0337	6.9677	6.7420	6.8295
40	6.2788	6.8011	6.7060	6.5202	5.5190	5.6434
45	6.3966	7.3037	6.8302	6.7003	5.2967	5.4956
50	6.0360	6.7125	6.2010	6.3960	5.2655	5.2868
55	5.8905	6.4245	6.0680	6.2751	5.2050	5.2246
60	5.5224	5.7772	6.0348	6.0591	4.7815	4.8385
65	4.1970	4.3331	4.6649	4.7466	3.5446	3.6422
70	3.4007	3.6186	3.7235	3.7052	2.8436	3.0831
75	3.1039	3.3383	3.4650	3.3698	2.5461	2.7554
80	1.7741	1.9298	1.9838	1.9175	1.4306	1.5860
85	1.1156	1.1644	1.2845	1.2960	0.8558	0.9958
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	37.2874	38.9950	39.0835	38.9551	34.0299	34.7838
sha	100.0000	26.4457	18.0771	19.1225	24.5454	11.8092
lam	1.013520	0.998459	1.004869	1.014274	1.029798	1.026765
r	0.002686	-0.000308	0.000971	0.002835	0.005873	0.005283

year 1998

population

age	total	n-west	n-east	central	south	islands
0	3916835.	858261.	577679.	654311.	1256657.	569926.
5	3900797.	855912.	588858.	661069.	1232822.	562136.
10	3775226.	822371.	576073.	645282.	1186426.	545073.
15	3603718.	809337.	559892.	625959.	1097896.	510634.
20	4037185.	1013780.	676131.	729380.	1096445.	521449.
25	4357116.	1175675.	785557.	813456.	1069489.	512938.
30	4626659.	1257608.	852605.	878316.	1113450.	524679.
35	4252876.	1109731.	783651.	814448.	1040961.	504085.
40	3876710.	984861.	708087.	750833.	964359.	468571.
45	3936311.	1044563.	729693.	773598.	932688.	455770.
50	3517246.	993202.	680990.	708663.	759287.	375105.
55	3490753.	1029088.	676273.	709807.	716048.	359538.
60	3176547.	906949.	593839.	655053.	685941.	334764.
65	2936325.	823181.	550043.	610179.	640025.	312898.
70	2509696.	676550.	496259.	538000.	534774.	264113.
75	1632462.	433509.	327887.	363412.	337680.	169973.
80	1013921.	275764.	202652.	221890.	204673.	108943.
85	864545.	229702.	181751.	199387.	163727.	89977.
total	59424924.	15300043.	10547919.	11353042.	15033349.	7190572.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.5912	5.6095	5.4767	5.7633	8.3591	7.9260
5	6.5642	5.5942	5.5827	5.8228	8.2006	7.8177
10	6.3529	5.3750	5.4615	5.6838	7.8920	7.5804
15	6.0643	5.2898	5.3081	5.5136	7.3031	7.1014
20	6.7938	6.6260	6.4101	6.4245	7.2934	7.2518
25	7.3321	7.6841	7.4475	7.1651	7.1141	7.1335
30	7.7857	8.2196	8.0832	7.7364	7.4065	7.2968
35	7.1567	7.2531	7.4294	7.1738	6.9243	7.0104
40	6.5237	6.4370	6.7130	6.6135	6.4148	6.5165
45	6.6240	6.8272	6.9179	6.8140	6.2041	6.3384
50	5.9188	6.4915	6.4562	6.2421	5.0507	5.2166
55	5.8742	6.7260	6.4114	6.2521	4.7631	5.0001
60	5.3455	5.9278	5.6299	5.7698	4.5628	4.6556
65	4.9412	5.3803	5.2147	5.3746	4.2574	4.3515
70	4.2233	4.4219	4.7048	4.7388	3.5573	3.6730
75	2.7471	2.8334	3.1085	3.2010	2.2462	2.3638
80	1.7062	1.8024	1.9212	1.9545	1.3615	1.5151
85	1.4549	1.5013	1.7231	1.7562	1.0891	1.2513
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	38.2233	39.9457	40.2372	40.0956	34.8748	35.6493
sha	100.0000	25.7468	17.7500	19.1048	25.2981	12.1003
lam	1.008439	0.995471	0.999068	1.007641	1.023514	1.020622
r	0.001681	-0.000908	-0.000186	0.001522	0.004648	0.004082

APPENDIX D *Continued.*

year 2003

population

age	total	n-west	n-east	central	south	islands
0	3761083.	806560.	540747.	622765.	1232129.	558882.
5	3880523.	851121.	579239.	656946.	1232195.	561021.
10	3894813.	856221.	593315.	666883.	1220740.	557654.
15	3766573.	839054.	582267.	651525.	1159100.	534626.
20	3592159.	851052.	573769.	638288.	1040654.	488397.
25	4023358.	1047707.	691823.	745021.	1039483.	499325.
30	4340155.	1178094.	793195.	826402.	1041098.	501366.
35	4601928.	1246412.	854983.	887179.	1095993.	517360.
40	4216866.	1097574.	781101.	816880.	1024617.	496694.
45	3821291.	968257.	699726.	746524.	946228.	460556.
50	3840745.	1012044.	712722.	760412.	909803.	445764.
55	3377891.	940889.	655323.	686151.	732357.	363171.
60	3283156.	952946.	638074.	673934.	676606.	341596.
65	2889429.	814117.	541421.	602056.	624964.	306870.
70	2517737.	696565.	471733.	529454.	549231.	270753.
75	1953789.	519059.	386523.	426492.	414798.	206917.
80	1073968.	279788.	217485.	246225.	219008.	111461.
85	737687.	191109.	152183.	173732.	141846.	78817.
total	59573148.	15148569.	10465628.	11356868.	15300849.	7301231.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.3134	5.3243	5.1669	5.4836	8.0527	7.6546
5	6.5139	5.6185	5.5347	5.7846	8.0531	7.6839
10	6.5379	5.6522	5.6692	5.8721	7.9782	7.6378
15	6.3226	5.5388	5.5636	5.7368	7.5754	7.3224
20	6.0298	5.6180	5.4824	5.6203	6.8013	6.6892
25	6.7536	6.9162	6.6104	6.5601	6.7936	6.8389
30	7.2854	7.7769	7.5790	7.2767	6.8042	6.8669
35	7.7248	8.2279	8.1694	7.8118	7.1630	7.0859
40	7.0785	7.2454	7.4635	7.1928	6.6965	6.8029
45	6.4145	6.3917	6.6859	6.5733	6.1842	6.3079
50	6.4471	6.6808	6.8101	6.6956	5.9461	6.1053
55	5.6702	6.2111	6.2617	6.0417	4.7864	4.9741
60	5.5111	6.2907	6.0969	5.9342	4.4220	4.6786
65	4.8502	5.3742	5.1733	5.3012	4.0845	4.2030
70	4.2263	4.5982	4.5075	4.6620	3.5895	3.7083
75	3.2796	3.4265	3.6933	3.7554	2.7109	2.8340
80	1.8028	1.8470	2.0781	2.1681	1.4313	1.5266
85	1.2383	1.2616	1.4541	1.5298	0.9270	1.0795
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	38.6438	40.3795	40.7478	40.5450	35.2979	36.0815
sha	100.0000	25.4285	17.5677	19.0637	25.6841	12.2559
lam	1.002494	0.990100	0.992198	1.000337	1.017794	1.015389
r	0.000498	-0.001990	-0.001566	0.000067	0.003527	0.003054

year 2008

population

age	total	n-west	n-east	central	south	islands
0	3589520.	746015.	500077.	586807.	1209088.	547533.
5	3726098.	800802.	542574.	625533.	1207432.	549756.
10	3874570.	851493.	583793.	662766.	1220013.	556505.
15	3885884.	873030.	599724.	673275.	1192747.	547108.
20	3754502.	883467.	596935.	664658.	1098185.	511258.
25	3579920.	888268.	589399.	653936.	982362.	465954.
30	4007717.	1054004.	700362.	757931.	1008877.	486544.
35	4316958.	1167752.	795639.	834629.	1024904.	494035.
40	4562910.	1231042.	852133.	889473.	1079698.	510565.
45	4156472.	1078309.	771733.	812099.	1005851.	488480.
50	3728826.	939093.	683468.	733981.	922212.	450072.
55	3689392.	960043.	686093.	736681.	875779.	430795.
60	3177454.	872071.	618096.	651546.	691101.	344639.
65	2986141.	855172.	581491.	619375.	616891.	313211.
70	2477486.	688845.	464346.	522378.	536364.	265553.
75	1959769.	534261.	367639.	419844.	425935.	212090.
80	1285100.	335017.	256416.	289048.	268955.	135664.
85	782451.	194109.	163269.	192623.	151777.	80672.
total	59541168.	14952793.	10353187.	11326583.	15518169.	7390435.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.0286	4.9891	4.8302	5.1808	7.7914	7.4087
5	6.2580	5.3555	5.2407	5.5227	7.7808	7.4388
10	6.5074	5.6945	5.6388	5.8514	7.8618	7.5301
15	6.5264	5.8386	5.7926	5.9442	7.6861	7.4029
20	6.3057	5.9084	5.7657	5.8681	7.0768	6.9178
25	6.0125	5.9405	5.6929	5.7735	6.3304	6.3048
30	6.7310	7.0489	6.7647	6.6916	6.5013	6.5834
35	7.2504	7.8096	7.6850	7.3688	6.6045	6.6848
40	7.6635	8.2329	8.2306	7.8530	6.9576	6.9085
45	6.9808	7.2114	7.4541	7.1699	6.4818	6.6096
50	6.2626	6.2804	6.6015	6.4802	5.9428	6.0899
55	6.1964	6.4205	6.6269	6.5040	5.6436	5.8291
60	5.3366	5.8322	5.9701	5.7524	4.4535	4.6633
65	5.0153	5.7191	5.6165	5.4683	3.9753	4.2381
70	4.1610	4.6068	4.4851	4.6120	3.4564	3.5932
75	3.2915	3.5730	3.5510	3.7067	2.7447	2.8698
80	2.1583	2.2405	2.4767	2.5519	1.7332	1.8357
85	1.3141	1.2981	1.5770	1.7006	0.9781	1.0916
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	39.1967	40.9546	41.4398	41.1427	35.8152	36.6152
sha	100.0000	25.1134	17.3883	19.0231	26.0629	12.4123
lam	0.999463	0.987076	0.989256	0.997333	1.014203	1.012218
r	-0.000107	-0.002602	-0.002160	-0.000534	0.002821	0.002429

APPENDIX D *Continued.*

year 2018

population

age	total	n-west	n-east	central	south	islands
0	3498372.	706324.	468250.	565320.	1214642.	543835.
5	3473092.	710228.	478833.	571385.	1179383.	533263.
10	3550521.	744218.	506824.	595507.	1170936.	533035.
15	3711867.	819242.	553728.	637702.	1166865.	534330.
20	3853308.	913475.	605649.	682649.	1129307.	522228.
25	3860233.	958422.	631959.	703781.	1066556.	499515.
30	3727188.	934299.	622749.	694704.	1001680.	473756.
35	3546997.	894820.	601888.	674463.	931531.	444294.
40	3952609.	1035364.	702181.	768375.	975395.	471293.
45	4218958.	1132098.	783722.	831534.	991941.	479663.
50	4388079.	1170270.	822223.	868924.	1034696.	491966.
55	3896056.	991979.	725450.	773595.	943641.	461390.
60	3370824.	828177.	620734.	675866.	834712.	411335.
65	3158338.	801127.	589937.	643611.	750305.	373357.
70	2478662.	663071.	482730.	519652.	540115.	273095.
75	1992567.	554674.	388399.	426063.	411033.	212398.
80	1267929.	340837.	240220.	280789.	269703.	136379.
85	937042.	238979.	183409.	222851.	191224.	100580.
total	58882640.	14437603.	10008886.	11136771.	15803667.	7495712.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	5.9413	4.8923	4.6783	5.0762	7.6858	7.2553
5	5.8983	4.9193	4.7841	5.1306	7.4627	7.1142
10	6.0298	5.1547	5.0637	5.3472	7.4093	7.1112
15	6.3038	5.6744	5.5324	5.7261	7.3835	7.1285
20	6.5440	6.3271	6.0511	6.1297	7.1459	6.9670
25	6.5558	6.6384	6.3140	6.3194	6.7488	6.6640
30	6.3299	6.4713	6.2220	6.2379	6.3383	6.3204
35	6.0238	6.1978	6.0135	6.0562	5.8944	5.9273
40	6.7127	7.1713	7.0156	6.8994	6.1720	6.2875
45	7.1650	7.8413	7.8303	7.4666	6.2766	6.3992
50	7.4522	8.1057	8.2149	7.8023	6.5472	6.5633
55	6.6166	6.8708	7.2481	6.9463	5.9710	6.1554
60	5.7246	5.7363	6.2018	6.0688	5.2818	5.4876
65	5.3638	5.5489	5.8941	5.7792	4.7477	4.9809
70	4.2095	4.5927	4.8230	4.6661	3.4177	3.6433
75	3.3840	3.8419	3.8805	3.8257	2.6009	2.8336
80	2.1533	2.3608	2.4001	2.5213	1.7066	1.8194
85	1.5914	1.6553	1.8325	2.0010	1.2100	1.3418
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	40.0543	41.8175	42.5757	42.0395	36.6452	37.5297
sha	100.0000	24.5193	16.9980	18.9135	26.8393	12.7299
lam	0.992867	0.981230	0.981220	0.989871	1.007615	1.005260
r	-0.001432	-0.003790	-0.003792	-0.002036	0.001517	0.001049

year 2028

population

age	total	n-west	n-east	central	south	islands
0	3436822.	683202.	446416.	550109.	1216172.	540923.
5	3457778.	698788.	463739.	565572.	1194955.	534724.
10	3460206.	706866.	475593.	574321.	1174667.	528759.
15	3459845.	731540.	490264.	583657.	1137341.	517043.
20	3531134.	807820.	528775.	615480.	1080556.	498503.
25	3687433.	905161.	586408.	668195.	1040952.	486717.
30	3825285.	964692.	632799.	713485.	1030068.	484240.
35	3824739.	965522.	645716.	726136.	1010855.	476510.
40	3676038.	922377.	626054.	705804.	964428.	457374.
45	3466936.	871844.	594881.	673334.	897446.	429431.
50	3801722.	985881.	678578.	750991.	933253.	453020.
55	3954104.	1040013.	736917.	791729.	931753.	453693.
60	3965482.	1029759.	746644.	799740.	938413.	450926.
65	3335560.	828412.	623629.	676041.	807849.	399629.
70	2631583.	632003.	485017.	539761.	649957.	324845.
75	2109523.	521507.	394100.	443294.	498215.	252407.
80	1268972.	328461.	249485.	279375.	271505.	140147.
85	953112.	247900.	193594.	226101.	184749.	100769.
total	57846280.	13871749.	9598608.	10883126.	15963134.	7529659.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	5.9413	4.9251	4.6508	5.0547	7.6186	7.1839
5	5.9775	5.0375	4.8313	5.1968	7.4857	7.1016
10	5.9817	5.0957	4.9548	5.2772	7.3586	7.0224
15	5.9811	5.2736	5.1077	5.3630	7.1248	6.8668
20	6.1043	5.8235	5.5089	5.6554	6.7691	6.6205
25	6.3745	6.5252	6.1093	6.1397	6.5210	6.4640
30	6.6128	6.9544	6.5926	6.5559	6.4528	6.4311
35	6.6119	6.9603	6.7272	6.6721	6.3324	6.3284
40	6.3548	6.6493	6.5223	6.4853	6.0416	6.0743
45	5.9934	6.2850	6.1976	6.1870	5.6220	5.7032
50	6.5721	7.1071	7.0695	6.9005	5.8463	6.0165
55	6.8355	7.4973	7.6773	7.2748	5.8369	6.0254
60	6.8552	7.4234	7.7787	7.3484	5.8786	5.9887
65	5.7662	5.9719	6.4971	6.2118	5.0607	5.3074
70	4.5493	4.5560	5.0530	4.9596	4.0716	4.3142
75	3.6468	3.7595	4.1058	4.0732	3.1210	3.3522
80	2.1937	2.3678	2.5992	2.5670	1.7008	1.8613
85	1.6477	1.7871	2.0169	2.0775	1.1573	1.3383
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	40.6275	42.2940	43.4202	42.6826	37.2471	38.1937
sha	100.0000	23.9804	16.5933	18.8139	27.5958	13.0167
lam	0.990387	0.979882	0.978273	0.987801	1.003924	1.001130
r	-0.001932	-0.004065	-0.004393	-0.002455	0.000783	0.000226

APPENDIX D *Continued.*

The stable equivalent population.

age	total	n-west	n-east	central	south	islands
0	3424995.	594768.	291690.	461906.	1513798.	562833.
5	3427703.	605561.	301567.	473756.	1489612.	557208.
10	3458876.	620663.	312502.	487429.	1481976.	556305.
15	3487889.	654385.	326577.	502734.	1454832.	549360.
20	3514184.	724573.	353768.	529417.	1378403.	528023.
25	3539842.	791787.	385196.	561943.	1295266.	505650.
30	3563790.	823403.	407175.	588538.	1250751.	493923.
35	3582685.	835878.	421831.	607873.	1228956.	488147.
40	3590612.	840827.	431037.	620531.	1213945.	484273.
45	3577797.	838610.	434706.	626498.	1198006.	479976.
50	3529779.	824372.	432347.	624745.	1175127.	473189.
55	3428999.	792926.	423808.	613969.	1137331.	460966.
60	3262412.	745930.	407162.	591607.	1077550.	440162.
65	3001324.	679683.	377164.	551403.	986870.	406203.
70	2603364.	583513.	328242.	485119.	852273.	354217.
75	2049043.	454029.	259625.	390013.	665680.	279696.
80	1359923.	297286.	174968.	267985.	434789.	184896.
85	993879.	209525.	133726.	212943.	302931.	134754.
total	55397100.	11917719.	6203090.	9198411.	20138096.	7939781.

percentage distribution

age	total	n-west	n-east	central	south	islands
0	6.1826	4.9906	4.7023	5.0216	7.5171	7.0888
5	6.1875	5.0812	4.8616	5.1504	7.3970	7.0179
10	6.2438	5.2079	5.0379	5.2991	7.3591	7.0066
15	6.2962	5.4909	5.2648	5.4654	7.2243	6.9191
20	6.3436	6.0798	5.7031	5.7555	6.8448	6.6503
25	6.3899	6.6438	6.2097	6.1091	6.4319	6.3686
30	6.4332	6.9091	6.5641	6.3983	6.2109	6.2209
35	6.4673	7.0137	6.8003	6.6085	6.1026	6.1481
40	6.4816	7.0553	6.9487	6.7461	6.0281	6.0993
45	6.4585	7.0367	7.0079	6.8109	5.9490	6.0452
50	6.3718	6.9172	6.9699	6.7919	5.8353	5.9597
55	6.1899	6.6533	6.8322	6.6747	5.6477	5.8058
60	5.8891	6.2590	6.5639	6.4316	5.3508	5.5438
65	5.4178	5.7031	6.0803	5.9945	4.9005	5.1160
70	4.6995	4.8962	5.2916	5.2739	4.2321	4.4613
75	3.6988	3.8097	4.1854	4.2400	3.3056	3.5227
80	2.4549	2.4945	2.8207	2.9134	2.1590	2.3287
85	1.7941	1.7581	2.1558	2.3150	1.5043	1.6972
total	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
m.ag	40.1348	41.8465	43.0772	42.7741	37.6210	38.5851
sha	100.0000	21.5133	11.1975	16.6045	36.3523	14.3325
lam	0.989460	0.989459	0.989460	0.989460	0.989460	0.989459
r	-0.002119	-0.002119	-0.002119	-0.002119	-0.002119	-0.002119

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(continued overleaf)

NATIONAL CASE STUDIES *(continued)*

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